THE OIL AND GAS JOURNAL

THE OIL INVESTORS' JOURNAL

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CENTRAL FUEL OIL TROUBLES.

Following the granting of a temporary injunction against the Central Fuel Oil Company, on the application of The Texas Company, by United States Judge Campbell at Muskogee, Okla., on May 25, the attorney and manager of the Central Fuel Oil Company have expressed a desire to make no specific statement until the hearing at Muskogee, to be held June 10, having been postponed from June 2, and The Texas Company has not elaborated the allegations contained in its motion. Enough is known, however, of the deducible facts involved in the proceedings to permit an ex parte statement.

Some days before the granting of the injunction the Central Fuel Oil Company's executive officers notified The Texas Company that it would, on May 25, disconnect its producing wells from the lines of The Texas Company, giving as a reason for the act the failure of The Texas Company to observe the contract agreement, because of the failure of the pipe line company to pay the Central Fuel Oil Company, or its subsidiary producing companies, for about 700,000 barrels of crude oil it had taken into its lines from the wells. This oil would have brought about $300,000 in cash into the Central company's treasury and the failure to receive the money was the cause of the failure to pay certain debts it owed. The officials of the Central Fuel Oil Company, it is understood, also intimate that its standing and credit were injured by statements circulated by persons connected with The Texas Company alleging that the Central company was insolvent and could not pay its bills and also was not furnishing to the pipe line as much crude oil as it had contracted to do. In answer to this charge the Central company says the pipe lines it is paying for to have right of way are handling oil for other producers. The Central Fuel Oil Company is prepared to show that it loaned The Texas Company the money that constructed the pipe lines, about $1,200,000, the loan calling for $3,000,000. It is also rumored, lacking verification, that the residuum oil The Texas Company was to deliver to the Southern Pacific railroad company at Dallas and Houston, for the Central Fuel Oil Company at 65 cents a barrel has not been taken by the Southrn Pacific.

The Central Fuel Oil Company will also likely urge that the contract entered into between itself and The Texas Company has led to trouble with the government authorities over the settlement of royalties and is a contract that can not be successfully maintained in opposition to government regulations and interpretation, and is really an inequitable agreement and arrangement. The company officials say that the third installment of 25 per cent of the purchase price of the 29 producing properties purchased will be made when due on June 14, or at least would have been paid had not this litigation intervened. For the reasons assigned, as outlined above, the company was induced to take the protective action of notifying The Texas Company of its intended placing of its crude with other pipe line companies.

The application for an injunction and receiver by The Texas Company is the only statement made for that side of the controversy. The allegation is made that The Texas Company had expended about $1,000,000 to construct pipe lines, pumping-stations, storage tanks and facilities for piping and refining the crude oil produced by the Central Fuel Oil Company and its subsidiary producing companies and that the contract entered into was proper as a security that The Texas Company might be reimbursed for the heavy expenditure it made. Therefore, when it received notice that the contract would be abrogated on May 25 arbitrarily by the Central Fuel Oil Company the injunction was asked for to protect its interests under the contract, which runs for a period of five years. The receiver is asked for to further aid the pipe line company in securing enough crude oil to reimburse it, as the affairs of the Central Fuel Oil Company are alleged to be in such bad financial condition and with an indebtedness that only the management of the business by a receiver can furnish assurance of continued operation of the properties on a basis that will protect The Texas Company under the terms of the contract. It is also alleged in the application that the Central Fuel Oil Company has not furnished to the pipe line company as much crude oil as was contemplated under the contract.

The contract involved in this litigation is undoubtedly one of the most complex ones ever entered into by a producing and a pipe line company, and may be subject to several interpretations, judging from the scant knowledge obtained of its contents by the one brief exhibition made of it in Washington last winter during a departmental hearing on other petroleum matters. The prices mentioned are 65 and 89 cents a barrel, for residuum and for distillates. It is also supposed to provide for the payment of $70,000 per month to The Texas Company by the Central Fuel Oil Company as compensation for the use of the lines and facilities of The Texas Company for the receiving and delivery of crude and residuum oils. The complex details have separated the producing, piping, refining and delivery of crude, distillates and residuum into such distinctive forms, with varying prices to be paid, with the mention also of a cash monthly payment besides, that there appears to be considerable ambiguity of language, at least so far as some of the interpretations of it have appeared, and it seems to be impossible to give a specific statement about it in advance of its presentation to the court. THE JOURNAL can not attempt to do so, further than has here been done, for it does not possess certain knowledge of the contents of the contract; nor can it attempt to discuss the merits of the litigation in advance of the presentation of testimony. There has been a great deal of comment, favorable and adverse, since the existence of the contract became known to the public and oil producers, and the government has had several agents investigating the facts, surrounding it, but to date nothing definite has been given out from the Interior Department or by its agents.

The general right to contract, so far as THE JOURNAL knows, has never been questioned by the government or by individuals, for it has been common custom in oil fields for years to do so, either as individuals or as combinations of individual producers, and pipe line buyers. The controversy in this instance arose over the payment of royalties to Indian land owners, but until the exact price which the Central Fuel Oil Company, or the subsidiary producing companies, receive from The Texas Company for crude oil is known the merits of this part of the controversy can not be arrived at. While there is much complexity of terms, as generally understood—but not conclusively stated by official authority—it may turn out that the net price the Central Fuel Oil Company, or the individual producing companies, receives for the crude oil it turns over to the connecting lines of The Texas Company is the current credit balance quotations paid other producers, and that the 65, 75 and 89 cents mentioned as contract prices are for the oil after it has been refined, treated and disposed of as products other than crude, in which event some of the complaints urged would be unwarranted. A question of fact rather than of law, it would seem, to be determined in court.

The litigation is undoubtedly important, as it may seriously affect the future operation of properties that were invoiced at $5,100,000 and against which invoiced value securities have been issued amounting to $6,000,000 and perhaps more—property of sufficient magnitude to attract attention anywhere. Insolvency has been charged and a receiver asked for, an allegation serious enough to warrant some ground for it being made, and if the investigation should determine the truth of the charge the Central Fuel Oil Company's existence as a corporation and a going concern would be ended, leaving extensive property and fiduciary interests to be liquidated or disposed of in some lawful manner. It is quite evident that The Texas Company does not propose to lose the production from the wells involved without an effort to reimburse itself for the heavy expenditure made in pipe lines, stations, tanks, etc., to handle the oil. Officials of the Central company have stated that about 39,000 acres of oil lands had been taken over and that above 7,000 barrels a day was the production, with the belief held out to the public that has been invited to buy bonds and stock that the production could or would be increased to 18,000 barrels a day. This much of the promoters' claims are unfounded, for, after an active drilling campaign lasting some months, the daily production was only slightly increased over what it was when the properties were transferred or taken over, and it can not be sensibly increased from its present gauge. The Texas Company alleges that it has not been given as much oil as the contract called for, and its pipe line runs are the best evidence of the capacity of the wells, numbering now about 700, it is estimated, an average per well of about 10 barrels if the production is 7,000 barrels. It is likely that all these facts will be brought out at the hearing, when THE JOURNAL will have something better and more conclusive than mere gossip to give to its readers.

MR. BUNCOMBE IS PEEVED.

Mr. Buncombe, who typifies the class of illegitimate promoters, thinks THE JOURNAL is butting into his business when it prints the records of failures of topheavy oil companies that are selling stock to the public. THE JOURNAL'S defense against the allegation is that Mr. Buncombe is butting into the business of legitimate oil producers and brokers when he misrepresents the value of his promotions and brings legitimate brokers into disrepute by his indefensible methods. Mr. Buncombe has a long list of dismal failures to his credit, or discredit, and THE JOURNAL, from time to time, is necessarily compelled to present some of the facts relating to the failures. What would you, Mr. Buncombe?

Many trade journals carry advertisements of stock companies soliciting the public to buy stocks in mining, oil and industrial and development concerns that have very little real value, being only speculative schemes with no resources behind them. These publications receive good incomes from this class of advertising and print no accurate detailed reports of development, therefore they take in all the money offered, look pleasant and say nothing to arouse suspicion against Mr. Buncombe's flotations and promotions. THE JOURNAL is one of a very small number of publications that is taken by oil producers, refiners, pipe liners and legitimate investors for its reports of developments in every oil field in the United States. The exact knowledge of producing properties and prospect ventures it secures through its field reporters is so much more reliable than the beautiful stories told by stock promoters that it would be a coarse joke to run one of Mr. Buncombe's page ads alongside the field report of the same property. Therefore, when we see Mr. Buncombe's statement that the eighty acres he is selling one million shares of stock on is surrounded on three sides by 1,000-barrel wells and our field man reports the same wells at 10 barrels we are placed in an embarrassing position. If we credit our field man, Mr. Buncombe is an accomplished liar and is taking money under false pretenses; if we credit Mr. Buncombe's statement, the field man must be fired for incompetency.

Mr. Buncombe is trying to stock a property worth $100,000 for $1,000,000 and clean up $400,000 cash for himself and leave the stockholders to whistle for their money. The legitimate broker, or the producer himself, is willing to sell the $100,000 property for $100,000 and take a legitimate commission, leaving the purchaser in possession of something worth the money he paid for it. It is quite evident that if Mr. Buncombe sells his stock he must deceive the people who buy it by making them believe the property is worth ten times more than can ever be produced from it.

To be more specific, some of the promoters in Oklahoma who are talking about THE JOURNAL are trying to sell in New York and Europe a lot of oil leases and some production for a great deal more than they are worth and are very touchy about having the real value of the stuff advertised, for the facts would likely spoil their trade. Some of these pompous gentlemen have sold Oklahoma pro-

ducing properties to syndicates and stock companies and there have been failures, as has been noted in the news columns of THE JOURNAL a number of times within the year. These failures are having a depressing effect upon Oklahoma oil-producing properties right now, to the inconvenience of legitimate producers who have good properties they would like to sell for what they are really worth. But your pompous promoter, Mr. Buncombe, is aggrieved because he can't pull off the deal he is working on now in the face of his previous failures, and very impolitely backcaps THE JOURNAL. Go to it, Bunc., old boy, before your picture appears. It might also help a little if you loosened up and spent fifty of that last $25,000 you slipped over on a bunch of good fellows. Don't be a tight wad and a grouch with the fellows who help you through tight places by keeping their mouths shut just to be neighborly. A tight wad promoter is simply unbearable. A box of good cigars, or a package of cigarettes, left in THE JOURNAL office would sound much nicer than a roast, and might save that rotten deal you are working on now. Quein sabe?

AN ENGLISH FULL HAND.

THE JOURNAL has two letters in its possession, written by English stock company promoters, that graphically illustrate the ins and outs of the many "foreign syndicates" that are just now being touted in every oil field in the United States. Both writers offer the same suggestions, the plans calling for the payment of one-half cash and one-half in stock to the owners of the properties sought to be taken over. The American owner must give to the English promoter a power of attorney, with a contract on the side for 20 per cent of the money turned over, and an option, signed and acknowledged before a notary, the nearest English consul being preferable, of indefinite duration. A complete blue print map of all the properties, wells, powers, tanks, lines, etc., must also be forwarded, duly acknowledged by the consul, with receipts from sale of oil, gauges and supply bills. One writer insists on having all this data before the coronation exercises, as he says the capitalists will be so fatigued after that event they will require ten days of absolute rest and surcease from business. The other writer is anxious to hurry his data so he can go to California for six months and take a long rest after his arduous promotion labors. This requirement seems to be no more than right and no American producer ought to put more work on a promoter than he can help, for such carelessness will certainly queer the whole deal. Promoters, like capital, are timid—exotics, as it were—and must be encouraged and handled tenderly.

One of the letters states, as an evidence of good faith, that the writer has four dukes and one lord on his staff, all rich men and the salt of English aristocracy—the best evidence procurable that he is hooked up to beat the game. To drop into vernacular, the "hand" this promoter holds may be called four aces and the joker, and seems invincible, unless royal flushes are played. This party has been nibbling at four Oklahoma producing companies, and after fully digesting the four dukes and one lord the joshing manager of one of the four companies believes THE JOURNAL should call that hand and call it hard, for he holds the cards. The president of one company is a Colonel, the manager of another is a General, the director of the third is an Elder in a Swell Church, and the high man in the fourth company is a Big Chief. We'll have to draw one card, which will be T. N. Barnsdall, thus making a royal flush, which, mixed with a little genuine American nerve, has Mr. Englishman faded, for he admits in his letter that English capitalists are a bit slow, you know, and can't quite make the pace. That's why they want ninety days to think it over, ninety more to get down to the magnificently furnished office and talk it over, ninety more to digest the blue prints and diagrams, and then six months to see the other dukes and two lords and raise the money. After which, the vacation in California. The bloomin' coronation is likely to upset a number of swell deals, but the aristocracy must be maintained if every oil lease in America stays shut down.

For the foregoing reasons, assumptions and facts it is quite evident that our American promoters are somewhat handicapped when they attempt to compete with their longer pedigreed English cousins, for the dukes and lords and mahogany furniture are the product of centuries, so nicely blended and upholstered that not even the faintest aroma of the varnish can be detected by an Irish setter. Can you beat it outside of Oklahoma?

EXPLOITING OIL FIELDS.

A great many personal letters and prospectuses of companies drift into THE JOURNAL's mail-box, some interesting, some foolish, and some very nervy. Many of them are not intended for publication, some of them should not be published if so intended, and a few ought to be published as curiosities. Most of them are very enthusiastic and boom some individual or corporate interest and free publicity is sought in the guise of news. Occasionally one seems to possess some merit and to be honest, even if mistaken. In this class is the Kramer-Barstow prospective oil field in south eastern California, over 100 miles east of production. A good showing of oil was found in one of the prospect holes drilling there and a number of companies have fee and leased land there, with several test wells drilling. M. E. Miller Company, of Los Angeles, Cal., has sent THE JOURNAL maps and reports covering that territory and seems very anxious to interest oil men with money to do some prospect work, offering to turn in 120 acres of every quarter section to a company organized to drill on each tract. This company seems to be honest and well-intentioned, but it is a wildcat investment that only few men care to venture. The greatest trouble with getting capital interested in these plans is that the people who lease or own the land to be turned into a stock company generally want to keep too big a share of the profits if oil or minerals are discovered in paying quantities. The man who puts up and loses $10,000 to drill a wildcat well, while the land-owner does not invest a penny, takes a very different view of the worth of the land than the fellow who owns the fee.

We give space to Professor de Lamorton's letter because it seems to be very unique and entertaining, and not to advertise the stock company he is boosting:

SPECIAL TO THE EDITOR.

Oil and Gas Journal, St. Louis, Mo.—Dear Sirs: The Pascagoula Oil Well Company's well No. 1, entitled de Lamorton No. 1, started to bore for oil at Laine at 10 o'clock to-day. The commencing of the well was started with a ceremony, conducted by Rev. Chipman Minister of the Episcopal church at Pascagoula. Following the ceremony Mr. Lewis's little boy, George Letherberry, baptized the well with a bottle of crude oil from Anse la Butte, La., immediately after which photographs were taken of the ladies present and a great many spectators, the board of directors and drilling crew, after which the boring commenced. The first 40 feet of the well was put down in 45 minutes. The citizens of Pascagoula were very much elated over the prospects and the elegant, smooth manner in which the drilling was started, and also the nice manner in which the drilling crew, selected by Mr. Johnson, the head driller, who has brought in many wells in Texas and Louisiana, handled the machinery and in conducting the work. The greatest confidence is expressed here by the citizens in the drilling crew. Work will be rushed from this on daily and completed with carefulness, so as to be able to take notice thereof and govern themselves accordingly. Dozens of oil men have investigated the fine indications located here by Prof. O. H. de Lamorton, and expressed themselves very freely with the same that oil abounds in this community than they have ever seen before. The heaviest and best machinery available, with the best possible men to do the work, was secured by the Pascagoula Developing Company. Money is coming in rapidly every day to Mr. F. H. Lewis, secretary of the company, to take up the last $15,000 of stock the company is letting the outside take part in, with $100 for $100 shares. This stock is being taken up rapidly. The first $15,000 was as successful as the last $15,000 was for the purpose of putting down two wells after the first one is completed.

Very respectfully,
PROF. O. H. DE LAMORTON,
Mineralogist, Geologist and Oil Expert.

Pascagoula, Miss., May 23, 1911.

HUNGARIAN GAS DISCOVERIES.

The Hungarian government has decided to monopolize the tremendous natural gas source recently discovered at Kissarmas, in Transylvania, of which the daily yield amounts to 26,000,000 cubic feet. The gas comes out of the ground at a pressure of over 30 atmospheres, and the noise it makes is heard many miles away. In view of the tremendous pressure it is quite impossible to reach the orifice of the well, which promises to become a source of wealth for the whole country. The prices of land in the neighborhood have already increased tenfold, and Kissarmas, from being only yesterday a little hamlet lost in the mountains, promises to become a very important industrial center. The gas can be utilized not only for industrial, but also for illuminating purposes. It burns with a very clear flame, and has a high calorific value.

The government engineers estimate that of the yield there will be sufficient gas to illuminate all the towns and villages in Transylvania, and also to bring over by pipes large quantities of gas to Budapest. Other borings for gas have already been commenced at Dieso-Szent-Marton, Ura Maros-Szent-Gyorgy, Sashsich-Regen, and Szent-Benedek. —*London Financial Times.*

LITTLE FLIGHTS

If any petroleum publication serves more news from all the fields than THE JOURNAL does, some one please cite us.

If you want to invest in petroleum keep off government land and Indian reservations. This is a straight tip that will save you money.

Attorney General Major, of Missouri, says Governor Hadley, also of Missouri, is a liar. Show us, gentlemen, remembering where you reside.

Atmospherical temperature in Oklahoma is favorable for stock promotions, but there is not water enough to vitalize the roots and the foliage fades.

Perhaps Andy Carnegie and John Jacob Astor were not such fools, after all, when they become citizens of Great Britain and ducked the United States.

The editor of THE JOURNAL took his hat off to Pittsburg, and blistered the top of his bald head, which is irrefragable proof that that town is a warm baby.

Some people seem to feel that because a man makes a few thousand dollars while his neighbors are not looking he is a statesman and that the man who remains respectable and poor is a hobo. It's anybody's squint.

We are inclined to believe that the people who are figuring out a consumption of 70,000 barrels of crude oil a day in excess of the production have a poor point on their pencil. One school district in Indiana is not the United States.

Commoner Bryan says President Taft appointed several Democrats to the United States Supreme Court purposely to involve the Democratic party in the unpopularity of the Standard Oil and Tobacco decisions. Go to it, gentlemen—the pleasure is all ours.

It may be a fact worth noting that THE JOURNAL is the only publication covering the petroleum industry which has printed the full and complete decision of the United States Supreme Court in the case of the government against the Standard Oil Company.

Not to be distanced by England the United States government ought to have a coronation when the presidential election is over next year, for whoever happens to be president in this country nowadays is about the best imitation of a real monarch we know of.

The Standard Oil Company has requested its clerical employes to take their summer vacations as early as possible, to the end that their services later on may be fully utilized in the reorganization work that will pile up in meeting the six months requirement.

The meeting of natural gasoline producers and shippers with Col. B. W. Dunn, the government expert, in Pittsburg last week was productive of good results. THE JOURNAL has a report of the meeting elsewhere in this issue. D. W. Franchot, of Tulsa, Okla., is one of the advisory committee.

There is an intimation that the sale and liquidation of the Associated Oil Company in California, ending the present management, may bring out a dividend better than $2.50 a share. A $40,000,000 concern that has done a prosperous busi-

ness for many years and paid only two small dividends ought to have a load of melons to cut.

In deciding the Oklahoma state capital removal case the United States Supreme Court knocked the filling out of the buncombe and political claptrap the wise congressmen put into the enabling act, declaring that Oklahoma had the same jurisdiction over its domestic affairs as any other state, the enabling act to the contrary notwithstanding. Which is good logic and equitable.

In the government's export statistics for April illuminating oil heads the list of all products exported from the United States, in value, and for the nine months period it easily leads cotton, the second in value. Illuminating, naphtha and lubricating oils exported had a greater value than any other article. Tariff advocates ought to hook up and study their lesson more intelligently.

Following the Pittsburg convention THE JOURNAL addressed a letter to every member of the Natural Gas Association, enclosing blank for subscription. Sixty-three replies in four days is evidence that our report was appreciated. These subscriptions, added to what we had before, gives THE JOURNAL'S list almost a complete round-up of the Association members. They will get the gas news, *while it is news*, too.

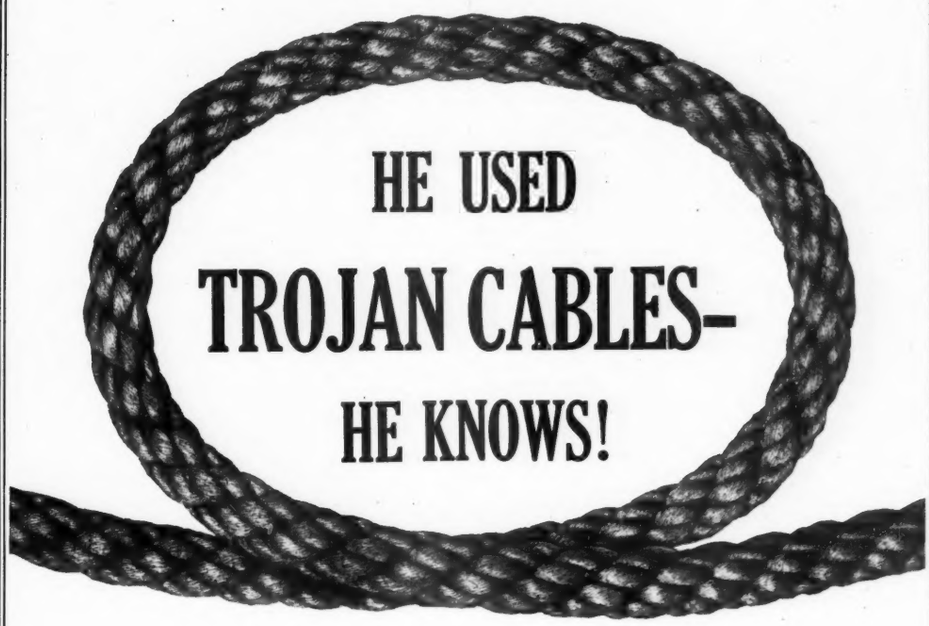
The oil business in Oklahoma is a pretty hard game to play, for the government has devised a plan whereby the Indian land-owner receives 15 per cent of the profits and the oil farmer takes what is left, and when he is broke the interior department refuses to approve a transfer of the lease to the pipe line company that takes compassion on him and buys it. A pretty hard game, and that's no joke.

Wyoming is picking up a little in the oil business and burning some nitroglycerin advantageously. If nothing prevents, THE JOURNAL will soon have a report from all the fields after a personal inspection. A 60-barrel well is the latest at Spring Valley, with a good well at Newcastle, in the northeastern part of the state. High grade oil is a marketable commodity anywhere, and in Wyoming and Colorado it sells for $1.50 to $2 a barrel.

There is a remarkable similarity in the stories of Mexican oil fields and business going the rounds of trade journals and newspapers, and they have all appeared since THE JOURNAL printed its special articles describing the Mexican fields. The *Petroleum Review* and the *Petroleum World*, of London, England, and the *Oil Age* of California reprinted the articles and gave THE JOURNAL due credit, but other trade journals and newspapers have cribbed and used them as original. The alterations they made did not improve the facts.

THE JOURNAL may be credited with a very glaring error in its report of the Natural Gas Association convention. William M. Welch, of Independence, Kan., was reported as being elected a director, when the mantle really fell on the broad shoulders of Maurice W. Walsh, of Oklahoma City, Okla. M. W. would not object if W. M. had been honored and W. M. will undoubtedly applaud M. W.'s selection, but the poor correspondent can hardly be blamed for getting mixed on the names. The new director was No. 1 booster when the convention was held at Oklahoma City and furnished much of the entertainment at Pittsburg with his exhibit of badgers. He is little, but could fill any job in the Association with credit to a man of Sweetman's size.

The American Tobacco Company was hit harder than the Standard Oil Company by the decision handed down Monday, and will have to "skin the cat," as the boys used to say at school. It's all there, of course, and none of the property can be confiscated, but all the subsidiary companies must go out of existence and the business must all be conducted with one plain wooden Indian in front of the stand. No fat Dutch figures, coons, Mastiff dogs stuffed, or other devices can be employed to make a labor union member think he is getting the label on his five-cent cigar and Battle Ax chewing. Hereafter we will miss the United Cigar Stores Company from the convenient corners, and the tin foil must disappear. The nude in art has forced the country to come to the nude in business as well, and every man can now roll his own stogie



A practical Oil Well Man—
Just like you—
Wrote the following report of actual work done for him in the South Osage oil country—
Read these results—not theories, not guesses, not claims, but true facts:

St. Louis Cordage Co., *Tulsa, Okla., Jan.* 17, 1911.
St. Louis, Mo.

Gentlemen: We take pleasure in advising you that the several "Trojan" Drilling Cables purchased through the Frick-Reid Supply Co., of Tulsa, Okla., have given us perfect satisfaction, and we have no cause for complaint. You can rest assured that we will continue using your brand of cordage. The cordage above mentioned was used in drilling wells in the South Osage Country.

Yours very truly,
(*Signed*) JAS. MCFALL.

Isn't it to your pocketbook's best interests to give Trojan Drilling Cable one fair trial right now?

OUR AGENTS

THE FRICK-REID SUPPLY CO., Tulsa, Bartlesville, Chelsea, Nowata, Preston, Delaware and Okmulgee, Okla.
BOVAIRD SUPPLY CO., Sapulpa, Okla., Independence, Kans.
WESTERN SUPPLY CO., Tulsa, Okla.
BRODERICK & BASCOM ROPE CO., St. Louis, Mo.

Our "RED BOOK" will post you on our many lines of Cordage. It's free to you. Every real Oil Well Man who writes us direct for prices and particulars is entitled to one of our "Trojan" Drilling Cable Watch Fobs—*free.* Have you got yours yet? Mention this paper.

St. Louis Cordage Co.
MANUFACTURERS
OFFICE: 1720 SOUTH 11TH STREET
MILLS: 11TH AND MENARD STS. (BETWEEN SOULARD ST. AND LAFAYETTE AVE).
ST. LOUIS, MISSOURI

at half-price and make his own kerosene. But he will still have to patronize the steel trust, the sugar trust, the lumber trust and the wool and cotton trusts, for they are the Y. M. C. A. boys, the candy kids.

Our Mexican news letter indicates unusual activity in the oil fields there in the way of providing storage, pipe lines and shipping movement. The Mexican Eagle Company (Pearsons) has placed an order for 50 iron tanks for immediate construction and the Huasteca Petroleum Company (Doheny interests) is adding storage facilities rapidly. Perhaps the most important announcement yet made is the beginning of shipments of crude oil from Mexico to the United States, the Standard Oil tanker Captain Lucas taking out 32,000 barrels, with the complementary report that the Huasteca company has also contracted to furnish 8,000 barrels a day to the Southern Pacific Railroad Company. This report lacks verification, however. The Texas Company is also hurrying transportation facilities. By the close of 1911 the Mexican oil fields will be exporting crude oil regularly to the United States in sufficient quantities to establish a market in competition with domestic production. The United States government seems determined to drive its own business concerns into a hole and invite a foreign invasion of petroleum.

The cut in the price of iron and steel by the Republic Iron and Steel Company is not likely to lead to very much of a "war" in steel, for the business of the country is in such shape that the volume can not be increased by lower prices. The Carnegie Steel Company is meeting the Republic's cuts and buyers may profit somewhat by placing orders at the lower price. The immediate effect of the cut is more likely to be withheld orders in the hope that prices will go lower, thus restricting the volume of trade rather than increasing it. Only 60 per cent of the capacity of steel mills is running now, and it will likely remain near that per cent. Heavy shippers are getting cars now easier than for a long time, there being more idle cars than a year ago. Conservative observers are inclined to look for restricted rather than expanded trade for some time, with smaller receipts because of declining prices in nearly every line of activity. Notwithstanding their enthusiastic indorsement of the Standard Oil decision, big corporations are a bit anxious regarding the readjustment of relations and promoters and boomers are finding it more and more difficult to start anything in the way of expansion and new business, for industrial and commercial conditions in the United States are really more uncertain and muddled now than they have been for some time. This fact is unquestionably illustrated in the conflicting views expressed by politicians of both parties and by the newspapers. We are due for a readjustment of political, commercial and economic methods and there is bound to be more or less trimming until we touch bottom again. Politicians threw the petroleum industry overboard a year and a half ago and it found its sealegs and is going along with less splashing than many of the other industries and will come out all right before some of the others.

While the trust-busting season is on, the government officials should get busy on the ring-leaders—the bank trust. There is a fruitful field for investigation here. If some of the clearing house associations are not conspiracies in restraint of trade—with no "reasonable" qualification—we miss our guess. The larger cities are by far the heaviest sufferers. In St. Louis, a bank customer may carry thousands of dollars on deposit daily, but for every check on an out-of-town bank deposited he must pay exchange charges. It is a well known fact that by a system of interchanges between banks, these exchange charges are retained by the bank and the statement is made that many of the banks pay their running expenses out of the monies so collected. The customer gets no interest on the money which he provides for the bank's speculative loans, but if he objects to paying the daily tolls he is confronted with the clearing house rules, which are ironclad. An Oklahoma banker is authority for the statement that millions of dollars are shipped to eastern cities yearly because of the tight-wad policies practiced by St. Louis banks and still St. Louisians wonder why the old town is so slow. In the ordinary course of business, a creditor may draw on a St. Louis debtor for money due him, paying exchange when the draft is made, but when the draft is presented in St. Louis the bank which holds it will even refuse to accept a check on a local bank—you must produce the coin or a cashier's check. Recently a "Night and Day Bank" was organized outside the clearing house and all local banks refused to cash checks drawn on that bank, or accept them for deposit from regular customers. The owners of the new bank applied to the attorney general of the state and he apparently served a gentlemanly notice on the clearing house, as the rule was very promptly rescinded. But why serve a notice without taking legal steps to see whether an organization which could make such a rule is not a combination in restraint of trade? This in Governor Hadley's state, too.

TRADE NOTES

Advices from the Argentina regions note that the Colonial Oil Company will erect a refinery on the site recently purchased at Zarate.

The Texas Company is constructing a storage tank at Newport News, Va., at the foot of Twenty-fourth street. It will hold about 18,000 gallons.

The Texas Company's tank steamship Northman, carrying oil from the Texas fields in bulk to Philadelphia and New York, is being lengthened 48 feet at Newport News, Va.

Two tank cars of asphalt oil have been ordered from the Atlantic Refining Company, to be used in oiling the streets of Chambersburg, Pa. The order will cover about 16,000 gallons.

The Petroleum Iron Works of Sharon, Pa., has distributed a number of pictures of its plant to various Shreveport companies. The pictures are handsomely framed and are very acceptable for office decorations.

Blair Burwell, engineer of the state land board of Colorado, has been investigating the discovery of oil in Montezuma county, Colo. It is said that oil has been found in proximity to state land along the Utah-Colorado boundary line.

Lightning struck at 37,500-barrel iron tank of the Gulf Pipe Line Company at its Lufkin station Saturday, May 20, the fire not being extinguished until Sunday night. The tank was filled with Caddo oil, about 27,000 barrels being consumed.

Major Williams and Lieutenant-Colonel Wheeler of the army have been directed by the war department to study the oil fuel system at the Portsmouth, N. H., navy yard, with the idea of probable installation of the same at the Watertown arsenal.

Lightning struck the submerged tank of the Muskogee Refining Company at Muskogee, Okla., last Monday, causing a spectacular fire and a lot of excitement. The tank contained about 4,000 barrels of crude oil and the loss will be between $5,000 and $6,000.

The storehouse and office of the Manhattan Oil Company at Mitchell, S. D., was destroyed by fire May 20. The loss was small, as the fire was kept from the storage tanks, although 2,000 gallons of lubricating oil and several barrels of gasoline and kerosene were burned in the storehouse.

The Unidilla Oil Company and the Prairie Oil Company have been refused charters by the State of Texas on account of the officers and stockholders being identical in each company and also because the Prairie Oil Company sounds too much like the Prairie Oil and Gas Company of Kansas, a Standard concern. Lee Hager, a well known Texas geologist, is interested in both companies.

The *Scientific American* says that the idea of obtaining gasoline from natural gas or liquefying gases is not a new one, and a process quite similar to that followed in some modern gasoline plants was described in the seventies by Coleman, a Scotch scientist, whose "Mechanical Refrigeration," Vol. 2, will prove a valuable reference for anyone desiring to pursue the subject more in detail.

The Fort Pitt Oil and Gas Company has been incorporated under the laws of West Virginia for the purpose of developing oil and gas lands in Columbiana and Mahoning counties, O., with headquarters in the Henry W. Oliver building, Pittsburg, Pa. The authorized capital stock is $25,000. The incorporators are James G. Storer, Thomas M. Allen, Charles W. Walmer, L. W. Smith and Henry Crawford, of Wilkinsburg, Pa.

The Gulf Pipe Line Company has built a fine tennis court for its employes alongside of the office building in Beaumont. A schedule has been made alloting certain portions of the day to the various offices, enabling every employe to use the court. A baseball team has also been organized and games with the Gulf Refining Company's team at Port Arthur and the Texas Company's team at Houston have been scheduled. W. L. Sloan, better known as "Tod," oil dispatcher for the company, is manager.

The 101 ranch in Oklahoma, a corporation owned by the Miller Bros., has published notice of dissolution, at the same time the Bliss Oil and Gas Company and the Bliss Townsite Company going out of business. The 101 ranch will be operated under the firm name of Miller Bros., while the other two companies, owned by the same parties, have outlived their usefulness and will cease to exist. The Miller Bros. are the owners of the ranch—the second largest in the state—and also have a show by that name.

The Y. M. C. A. of Beaumont is burning gas as an illuminant in the vestibule of the building, the gas coming from a water well drilled nearly a year ago to supply the natatorium. The gas which flows the well had been used for some time in a stove, but it was not until recently that it was tried for lighting purposes. The pressure is weak and will never amount to much from a commercial standpoint. The well is 705 feet deep, strainers being set at 614 and 654 feet, and flows 400 barrels of water daily. H. A. Perlstein, owner of a large office building situated near the Y. M. C. A., is investigating the matter with the view of drilling a test well to supply his building with light and heat.

Notices have been mailed to stockholders of the Ohio Fuel Supply Company and the Ohio Fuel Oil Company of the annual meeting of these corporations. The meeting of the Ohio Fuel Oil Company will be held in Pittsburg, Pa., Monday, June 22, at 10 a. m., the transfer books being closed from June 7 to 12. The meeting of the Ohio Fuel Supply Company will be held Tuesday, June 13, in the offices of the company at Front and Gay streets, at 10 a. m. The transfer books of the company will be closed from June 7 to 13 and proxies will be made out in the name of H. C. Reeser and L. E. Mallory Jr. Aside from the annual reports only routine business will be transacted.

A rate of 17 cents per 100 pounds on refined oil from Chanute, Kan., to Omaha, Neb., will go into effect June 1 by order of the Interstate Commerce Commission. The present rate is 22 cents. The refiners asked for the reduction on account of there being a 17-cent rate from Coffeyville, Kan., to Omaha, which was discriminatory against the Chanute refiners. The application for an equalization rate was made by the Chanute Refining Company, and the Kansas Co-operative Refining Company of Chanute, the Kansas Refining Company, formerly of Chanute but now of Coffeyville, and the Great Western Refining Company of Erie, Kan. The commission's order applies to the Missouri Pacific and the Santa Fe railroads. The refiners and railroads were given a hearing at Chanute November 28, 1910.

The architecture and building show, which opened in New York May 19 and continued to May 27, proved a big success. Among the exhibits that are of especial interest is the combined one of Henry R. Worthington, the Blake & Knowles Steam Pump Works, the Laidlaw-Dunn-Gordon Company and the Deane Steam Pump Company. They had one of the few operating exhibits to be seen at the show. It is a type A open pattern liquid weigher, a recent product of Henry R. Worthington, developed for accurately measuring and recording by either weight or volume, the flow of hot water, chemicals, oils and other liquids that cannot be satisfactorily measured by meters. A little centrifugal pump, which is only 12 inches in diameter, but has a capacity of 30 gallons a minute, returns the water for the weigher, and is the finished product in pump manufacture.

The Scotch shale-oil industry, practically confined to two counties in this district, is carried on by seven companies having an aggregate capital of $10,000,000. The oil shale found here does not, in fact, contain either oil or oily substances, but a material called kerogen, which on distillation produces oil and ammonia. Sulphate of ammonia, originally regarded as a by-product of quite secondary importance, has become a highly profitable article as the result of improvements in retorts and the recovery of a large quantity of the ammonia. The oil industry as a whole was severely affected last year by American competition, the prices of paraffin oil, lubricating and gas oils, and

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paraffin wax tending downward. Fortunately for Scotch companies, sulphate of ammonia advanced to $64 per ton, giving them a clear gain of about $5 per ton over the price in 1909. As the quantity produced was between 50,000 and 60,000 tons, the increased profit compensated, partly at least, the reduced prices of oils. The total value of the output of the seven companies for the year did not fall below the average for the last six years—about $13,000,000.—*Consul Rufus Fleming*, Edinburg.

PERSONAL MENTION

J. V. McMahon, of Tulsa, is down in northwest Texas looking over the new oil fields, for possible investment.

John Peter Riley, of Nowata, has resigned as leaser for Gunsburg & Forman and will go to work for "Jack" Riley, the producer.

John A. Bell, Jr., of Bartlesville, Okla., shipped his automobile east and will do a little touring after attending the commencement exercises at Princeton.

E. J. Maire, of Lima, O., is in Bartlesville completing plans for the construction of a five-story hotel there, a proposition he has been working on for several years.

N. V. V. Franchot of Olean, N. Y., is spending a month in Tulsa watching his son, D. W., manipulate their producing properties and the natural gasoline business.

Joe Rogers, of the firm of Rogers & Ladd, Tulsa, Okla., has gone to Tampico, Mexico, to probably remain permanently, looking after lands, oil leases and a general brokerage business.

A. G. (Fred) Forman and David Gunsburg are inspecting their properties in the Delaware field. There have been negotiations pending for their sale to a European syndicate.

John Newell, proprietor of Newell's Hotel, Pittsburg, Pa., was in Oklahoma a few days looking after his Osage producing property, but went to Hot Springs, Ark., to recuperate from a bad "spell."

William Nelson and 'Gene Huff have returned to Tulsa from New York, where they disposed of their Oklahoma holdings in the Pennsylvania Oil and Development Company. They have leases in the new field in western Illinois.

William Carnill of Tulsa visited the Illinois field last week, but says he is mighty glad to get back to Oklahoma, where he has a fine producing property in the Flat Rock pool three miles north of Tulsa, the Hill Oil and Gas Company.

W. T. Reese, formerly of Independence, Kas., is now a resident of Colorado, where he has a sheep ranch. He and Mrs. Reese spent most of the winter in Independence, where he still has some production. He is not a free wool Democrat.

R. C. Wilson, formerly of Titusville, Pa., has been promoted from field man to general manager of the Ohio and West Virginia Oil Company. The producing properties are in Morgan and Washington counties, O., and Pleasants county, W. Va. The company is an active development concern.

John Larkin, principal owner and manager of the Eastern Torpedo Company, Bartlesville, Okla., is in the East on a business visit and also to accompany his daughter, Miss Hazel, to New York, from which place she will sail for a tour abroad during the summer and put a few finishing touches to her voice.

Arthur F. Dupont, auditor for the E. I. Dupont Nemours Company, nitroglycerin department, is in Oklahoma checking up the various stations of the company. Tulsa was recently made headquarters for all the oil field work west of Pittsburg, Pa., with R. P. Barton general manager and Frank Wentworth office manager.

Dixon Q. Brown, of New York, and Frank Haskell, of Robinson, Ill., executive officers of the Associated Producers Company and the Tidewater Pipe Company in Illinois and the East and the Okla Oil Company in Oklahoma, have been spending a few days in Oklahoma looking over the producing properties. C. E. Hane is the local manager.

J. B. Hazlett, of Bowling Green, O., with his wife, son and Mrs. E. R. Lynch, has been spending several days looking over his property between Stockport and Pennville in southeastern Ohio. He has 400 acres of leases in the field and has completed 11 wells with a production ranging from five to thirty barrels, and is keeping one string of tools running continually.

W. R. Hughes, traveling auditor for the Oil Well Supply Company, Pittsburg, Pa., is making his annual inspection of the company stores in Oklahoma and Kansas, which requires about a month, when he will go to California, Texas and Louisiana. "Billy" says he has no more home than a rabbit, as he is on the road continually, but he bears the burden cheerfully.

Newt Ury, of Muskogee, right-of-way and land commissioner for the Missouri, Oklahoma and Gulf Railroad, was a welcome caller at the Tulsa office of THE JOURNAL Tuesday to make some inquiries about the new Wagoner oil field, where he has some land. Newt helped appraise and survey Indian Territory for allotment and is one of the best known men of the Southwest.

Charles Palmer, Bartlesville superintendent for the Central Fuel Oil Company, received word last Saturday that the infant son of Mr. and Mrs. E. G. Palmer, of Shreveport, La., had died. Mr. Palmer is production superintendent in the Caddo field for the Standard Oil Company, having moved there a few months ago from Findlay, O., where he was superintendent for the Ohio Oil Company.

"Al" Emerson is spending a few days in Oklahome furthering the interests of the S. M. Jones & Co. specialties, Toledo, O. He has been through the California and Colorado fields and finds business pretty good. "Al" has been in the supply business nearly all his life, with the Oil Well and the National, the crowning work of his life being mayor of Rising Sun. He holds the controlling interest in the Jones company and is a mighty good hustler for his own business.

His many friends throughout the country will be interested in knowing that Amos Mitchell is now the chief hustler for The Texas Company petroleum products in the El Paso district, under Superintendent Freeman. "Ame" is one of six traveling salesmen out of El Paso, has an automobile and does as much business as the whole bunch. Before being transferred to that territory he was in charge of the city trade in Houston, Tex., for the company, but he needs more territory to absorb his energies.

The many friends of E. F. Blaise, of Tulsa, Okla., will be glad to learn that Judge Campbell, United States district court, sustained the demurrer of Mr. Blaise's counsel and that indictment was dismissed. Mr. Blaise was indicted by the United States grand jury charged with false entries and misappropriation of funds of the Farmers National Bank, which failed a year ago, in connection with W. C. Norton, of Bartlesville and Oklahoma City. Judge Campbell held that no loss was sustained by depositors or others by any action of Mr. Blaise and dismissed the case on that count. Another count remains to be tried, but this action forecasts his final discharge.

J. H. Evans, Colonel Hirsh, John Roy and Gardner Steel have returned from a prospecting tour of Northwest Texas, around Electra and Vernon. They are somewhat divided in opinion regarding the new oil field, especially as to the extent of territory likely to prove productive. J. K. Ronne has been there for several months. The Producers Oil Company and the Corsicana Petroleum Company have big blocks of territory under lease there, particularly the Producers Oil Company, one lease containing 280,000 acres, and several counties are pretty well leased up along the probable belt, especially to the north of the Electra well, everything being taken between the well and Red river. John Roy has a well drilling there. "Heck" Gilchrist, of Indianapolis, who secured several thousand acres there some years ago, has shipped two strings of tools there from Illinois and will do some prospect work. Clay, Wilbarger, Wichita, Callahan, Shackleford and adjoining counties are just now attracting about as much attention from the oil country talent as any place.

A. T. ("Ab") Fancher of Salamanca, N. Y., who arrived in Oklahoma last Saturday, is telling one on himself. Just as he was leaving home he found about $30 in his pocket and wrote a check for enough to cover the trip expenses. He was going to make it $125, but after he started to write he said a tight-wad feeling came over him and he wrote the check for only $120. He put the bills in his book and stuck it in an inside coat pocket. On the train, being warm, he took the coat off, moving his seat a time or two, pulling the coat after. When he arrived in Tulsa he wanted some money, but on reaching into the pocket found the wallet had been lost. With his accustomed optimism "Ab" is congratulating himself over having saved $5 through that tight-wad hunch, which is sure some consolation. The loss of the $120 comes at a very inopportune time, for the production of his Finance Oil Company in the Osage has averaged only 9,000 barrels a day for 120 days, and he is financially pinched for a few days.

IN THE COURTS

A receiver has been asked for the Parkersburg Oil and Gas Company. In the petition the plaintiff alleges that the company is insolvent with liabilities amounting to more than $1,500 and assets less than $1,100. The company is doing business in Ohio.

Suit has been entered against the American Natural Gas Company by the Kittanning borough of Pennsylvania to recover $2,884.32, said to be due the borough for pipe taxes during the last few years. The borough levies a tax on all pipe, wires and poles in the borough, none of which, it is said, has been paid by the defendant company.

J. C. Goll, receiver of the Thurman-Barrett Oil Company of Columbus, O., has filed his report in the common pleas court of Fairfield county. He says all of the indebtedness has been fully paid and the receiver has a balance in his hands of $33.49 and some oil and gas leases, and asks for authority to turn over to the company the property. Total amount received by him was $7,309.76; total disbursements, $7,276.27; balance, $33.49.

The Hamilton Gas and Electric Company of Hamilton, O., has filed suit against the city of Hamilton to enjoin the city from selling natural gas at 30 cents per thousand cubic feet, claiming that the city is selling the gas at a less cost than it pays for it. The city filed two motions in answer, asking that the plaintiff company be required to give bonds for the costs in the case and the other that the petition be made more definite and certain.

In an interlocutory decree made May 20 in the circuit court at Cincinnati, O., Judge Sater granted a perpetual injunction to the complainants in the case of S. F. Bowser & Co. vs. the National Oil, Pump and Tank Company. He holds that the defendant has infringed the patented improvement in measuring tanks complained of and ordered that Attorney Thomas H. Kelly be appointed master to take an accounting and report to the court.

The Manhattan Oil Company of No. 51 Front street, New York City, a manufacturer of lubricating oils, has filed schedules in bankruptcy with liabilities of $12,169, of which $11,825 is unsecured claims, and assets of $5,814. As reported in THE JOURNAL a few weeks ago, a petition in bankruptcy was filed against the company by Alden S. Swan & Co.; Alexander Sampson and Tobias T. Pergement & Co., with claims amounting to $1,413. The company is capitalized for $300,000 and has been a heavy loser by fires.

The Buena Vista Land and Development Company has instituted suit against the Honolulu Consolidated Oil Company to eject the latter company from its holdings in section 12-32-24, Midway field, California. Complainant asks that the company be enjoined from operating in any way the wells on the property and from taking the output therefrom, and also that the sale of oil and gas be prohibited. Plaintiff avers that it holds a deed to the section and that the operating company has no right on the property. It is alleged that the section was purchased and a deed received from E. J. Wible, who purchased the property from the state as school land, receiving title therefrom. This is one of the best properties operated by the Honolulu company, on which are several large wells, besides one of the best gas wells in the Midway field.

In the suit of the heirs of James Rupel against the Ohio Oil Company which was appealed to the supreme court of Indiana from the circuit court of Jay county about three years ago, the lower court has been reversed and the superior court has found that one holding an interest in a life estate has no right to lease or sell the mineral rights. The suit was brought by Martin Rupel, now deceased, and other heirs of James Rupel. It was to recover for oil produced on a farm owned by the plaintiff's father, in which Mary Rupel, the wife, held a life interest. She executed a lease to John Wolf and he assigned it to the Ohio Oil Company. The case was tried before Judge LaFollette in the lower court and he found for the defendant. The plaintiff contended that the lease was invalid as only a life interest and not fee simple was held in the estate. In reversing the lower court the supreme

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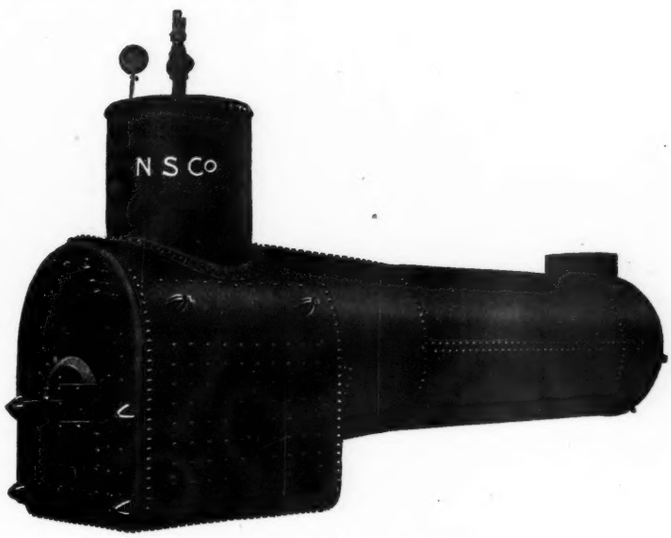

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court held that a life tenant cannot grant the right to anyone to take the oil from her life estate and if such is done the parties receiving the oil must account for same. Under the decision the Ohio Oil Company must settle with the heirs for the oil which is valued at $100,000. The company has drilled 16 good producers on the property. The suit was carried to the supreme court on a demurrer.

The case of the government against the Standard Oil Company, which was called in the United States district court at Rochester, N. Y., May 22, in which the company was charged with accepting rebates, will not come up for trial before fall. Following the close of the government's arguments on the question in issue, under the special plea in bar, Judge John R. Hazel adjourned court and announced that he would hand down a decision some time in the summer. Whatever the decision may be, an appeal to the United States Supreme Court is probable and the trial of the issue may be postponed indefinitely. This is the case in which the oil company is charged with having accepted rebates on oil from Olean, N. Y., to Burlington, Vt., there being 188 counts. The minimum penalty for conviction upon each count is $1,000 and the maximum is $20,000. The defendant company contended that there should be but ten counts in the indictment as there were but ten shipments in question. The government based its count on the separate carloads, counting each one as a shipment and each shipment as a count. The company contended that a number of consignments shipped on one train constituted only one shipment, while the government held that each consignment, where a rebate is alleged to have been accepted, may be constituted as a separate offense. The indictment is of long standing, but the trial has been delayed.

RECENT DEATHS

Charles H. Lavens, aged 62 years, died at Bradford, Pa., May 25. He was formerly president of the Commercial National bank and a pioneer oil producer. He leaves his widow, one son, John R. Lavens, of Bradford; one daughter, Mrs. Stanley Smith, of Pittsburg; two sisters, Mrs. Thomas McEwen, of Seattle, Wash., and Mrs. Mary Reid, of Franklin, Pa., and one brother, William Lavens, of Eustis, Neb.

Thomas Sullivan, aged 64 years, died at his home at Franklin, Pa., May 19, after an illness of several months. For many years he was employed by the Eclipse refinery, being retired on a pension six months ago for long and faithful service. He leaves a widow and the following children: Misses Mollie, Nora and Maggie, of Franklin; Mrs. Catherine Bushnell and Michael Sullivan, of Franklin; John, of Chicago, and James, of Detroit.

Ira P. Allen, aged 70 years, died at Passaic, N. J., May 26. He was one of the early pipe liners and had been connected with the oil business since the 60s. About 1870 he was employed by the Union Pipe Line Company with headquarters at Foxburg, Pa., and for several years afterwards was foreman for the company under A. W. Smiley, superintendent, going with the Standard Oil Company when the pipe lines were consolidated as the United and has been in its employ continuously since.

Robert Lynn Palmer, the seven-months-old baby of Mr. and Mrs. Gene Palmer, died Thursday at Shreveport, La., from intestinal poisoning, having been ill but one day. Mrs. Palmer, who was almost prostrated from the shock, will leave for her old home in Findlay, Ohio, Thursday. She will be accompanied by Mr. Palmer and "Jack," their one surviving child. The Palmers are recent comers to Shreveport, Mr. Palmer being placed in charge of the Louisiana district when the Standard Oil Company bought the Trees Oil Company's property.

Frank H. Blocker, night engineer for the Gulf Pipe Line Company at Chatterton, Tex., was burned to death last Sunday night when a break in a valve in an overhead oil line allowed the oil to flow on him, becoming ignited from a lantern he was carrying. A physician from Shreveport was summoned and everything possible was done to relieve his sufferings, but he was burned so badly that he died en route to a Shreveport hospital. Mr. Blocker was 23 years of age and lived at Leigh, Tex., having been employed by the Gulf company about 8 months. He is survived by his father, mother, two brothers and two sisters. He was a bright, capable young man, an efficient workman and held in esteem by all who knew him.

MORE NOTES ON THE GASOLINE INDUSTRY.

(By F. H. Taylor.)

When it first became common report among producers that there were money making possibilities in the production of gasoline from natural gas, and inquiries were made as to the amount of such product per 1000 cubic feet of gas, and the profits to be expected, it was generally rumored that six to eight gallons of gasoline might be expected from each 1000 feet of gas. These figures are still largely credited, and the idea generally prevails among those who have not been investing money in actual tests, that the number of thousand cubic feet of gas per day from a lease, multiplied by six or eight, will represent the gallons of gasoline that can be manufactured. This method contains the same error as the estimating of a day's production of an oil well from a five or ten minute gauge, when it is fresh.

There have been tests to determine the amount of gasoline contained in a fixed quantity of gas, which showed the above figures, and one producer has stated that he has made ten gallons from 1000 feet, but they were under exceptional conditions, and in the latter case the producer merely estimated the feet of gas, from the amount the compressor would take per minute. A visit to a number of plants has proven that the actual output never equals the amount reported on the outside.

Producers rarely know the amount of gas on their leases. For years it has been of no practical value to them except to drive the gas engines, and so long as it did that the amount was not important; so when they figure on putting in a gasoline plant, their estimates are often wide of the fact. One producer who estimated the amount of his gas at 100,000 was surprised to find the meter gave him credit for only 45,000; and another who thought he had "about enough to run a boiler," was pleased with a meter reading of 28,000 cubic feet per day. As the meters do not register on a vacuum, the amount of gas produced is largely an estimate, and liable to mislead.

Then there are the usual mechanical troubles which belong to the starting of any new business, no matter what it is. There are breakdowns, and leaks, and bothering with new machinery, all of which lessen the anticipated daily output. One plant which was reported as good for 8 barrels per day, started up the latter part of December, and up to last week had made and sold 5,000 gallons, instead of the 50,000 gallons with which it should have been credited by all estimates. Another plant making nine gallons an hour from 75,000 cubic feet per day, when running, has in two months actually produced nearly 1000 gallons. These are the worries that confront a beginner in the business, and the difference at the end of a month between the anticipated profits and the actual results is often disappointing.

But after the plants are established, and the little troubles that annoy have been overcome, and the lease men become used to the machinery and handling of the product, the producer, if he has the right kind of gas, and with ordinary care and economy, will find the business a money maker. Many plants are proving little gold mines to their owners, and run with as little attention and with as much satisfaction as a properly behaved oil well. One man with an output on a small lease of close to 120 gallons a day, says that for a year past the production has scarcely varied from one month's end to another. His only extra expense since installing the plant has been the hire of an additional man, the hauling of the product to the depot, and the purchase of the drums in which to transport it. Those who depend upon ordinary water cooling from runs or in tanks, find their production lessened in summer, and especially in very dry weather, while those who have more complete cooling systems report that there is no material change in the production, winter and summer.

Reference has before been made to the fact that all gas will not produce gasoline, and it is also beginning to be understood that gas from the same sand varies in its richness in different fields. It may be proven to have as much variance as the production of oil wells, producing from the same sand but located in separated sections. Nor does it follow that the gas must come from wells producing oil, or that the amount of oil in the wells has an effect upon the quantity of gasoline that can be produced from the gas. One plant is running wholly on gas from wells that were never worth pumping, and finds the gas very rich, while near Tidioute some of the leases are run almost entirely for the extraction of the gasoline, and on gas from exhausted oil wells. One man had the experience of making gasoline from wells producing oil, and again from the same wells after the oil had been driven away by the water flooding them. He got more gasoline after the flooding than before.

Within a week samples of gas sent to Pittsburg showed the following results per 1000 cubic feet of gas; third sand gas, six gallons; second sand gas, a trace; red valley gas, three-eights gallons. These samples were taken from wells in the southern part of Venango County; the third sand gas being from the old Bullion field, and the others from near by.

A new gasoline plant has just been built near Kennerdell, Venango County, by R. B. Thompson & Co. It has all the late improvements, and a capacity for 350,000 cubic feet of gas per day. At present they are running on 90,000 feet, and are making nine to ten barrels a day. They estimate they are making six gallons per thousand cubic feet of gas, running at 250 lbs. pressure. The product is 94 gravity, and the first run of last week was mixed with heavier gasoline brought to Kennerdell from some refinery, and thus a product formed which finds ready sale. The work on this plant was commenced about eight months ago, and it is only within a week that it has got into good running order.

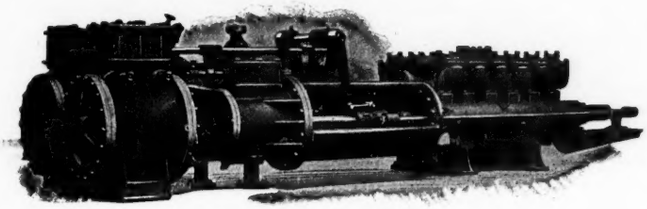
In the Bullion field, Grenier, Blair & Craig are making a carload of the stuff about every two months, and the Baum estate has a plant in operation during the winter. These are all at gas pumped wells, and the gas is considered rich in saturation.

R. B. Thompson & Co., located their plant back on the hill south of the river, and now realize that it would have been cheaper and better in every way to have placed it near the station. By doing so they would have saved the hauling of the machinery a long distance, and also the hauling of the gasoline to the cars, while the gas could have been brought to the plant with only a little more pipe than is now required. And this location of the plants is one which should be taken into more careful consideration by those intending going into the business. The expense of teaming in hauling the finished product to the market or depot, as well as in transporting machinery and fixtures to a distance, is no small item, and places the producer located at a distance from a railroad at considerable disadvantage as compared with one more favorably located. It is easier, and in the end less expensive, to pipe the gas to the railroad and manufacture the gasoline there, when it can be done, than to locate it back on the lease away from the railroad. With the large increase in production of gasoline which is sure to come with the increase of gasoline plants, and the probable variation in price which would naturally be expected to follow, the producer located at a distance from the railroad may find himself badly handicapped at times. One operator to whom this was suggested said when he could not haul it, he could dump it into his tanks and sell it for oil, and let the pipe line do the transporting. He could at least get petroleum prices for it, and it mixed readily with the crude. In the northern part of the county a plant is contemplated of a capacity of nearly half a million feet a day, and this is located where it will require a haul of more than nine miles to the railroad, and over two big hills. In such a location there is a handicap, and it would be well to consider the laying of a gas line rather than accept the disadvantage.

One invention calls for another, and when there is need for some article the supply is usually found. In the present instance the demand for the motive power for gasoline engines in manufacturing establishments, automobiles and motor boats, is increasing so rapidly that a need of a greater production was evident, and the changing of the waste gas at the oil leases into a power that can be transported comes at an opportune time. As the census shows there are over 500,000 automobiles in the United States, one can figure some of the demand for this one use only.

In a recent interesting article W. C. Tompsett, claims as an historical note, that the Tompsett Brothers of Tidioute manufactured and sold six barrels of natural gas gasoline, at $2 a barrel, in 1899, and since that time the producers at that place have manufactured it steadily, and with success. As the Fasenmeyer gasoline plant is almost in sight of the location of the old Drake well, which was the inception of the oil business, and Tidioute was also the scene of its early history, it would seem a suitable coincidence that the natural gas gasoline industry should start from the same locality.

Snow Compound Pressure Oil Line



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NORTHWESTERN LOUISIANA
NORTH TEXAS

OKLAHOMA FIELDS DRIFTING.

Field Work Rather Quiet—Wagoner Producer—Department Interference.

TULSA, Okla., May 31.—(Special.)—The past week was hot and dry, especially hot, and water is getting scarcer in many districts. The situation can very appropriately be termed listless in Oklahoma and it is very difficult to arouse any enthusiasm. One producer who has been operating steadily for eight years and taken down some profits, declared that there is no money in Oklahoma oil—that is, enough to interest active men with plenty of capital—and he is partly right. Compared with Illinois, California and some other fields, investment in Oklahoma is government bonds interest alongside South African diamond mines. With the exception of a few leases in the Glenn pool and one or two in the shallow sand field and in the Osage reservation there has never at any time since the Oklahoma oil fields were opened ten years ago been an opportunity for the owners of average production to realize on the investment, and it looks as though the same conditons would prevail indefinitely. With the flush production from a few extra good wells in a very few localities the producer has made a little money, perhaps, but by the time the lease had paid out the production was down so low that it little more than pays operating expenses, and in some cases it requires the closest economy to make it pay its own way. Many operators have invested $100,000 in securing leases, drilling wells and equipping the property and have no money left to develop other leases they have held for several years—they are in and can't get out.

The government has attached so many restrictive regulations to securing leases and developing a production, for the ostensible purpose of helping the Indians, that the producer goes down the regulation chute helpless to better his finances by turns that are always made in other oil fields. After the Oklahoma producer has determined to sell his properties at a price he would not take if more independent financially, so many absurd department whims are injected that the prospective buyer, if an individual or a company, frequently calls all negotiations off, and if a pipe line the assignment will not be approved. After the government has compelled months of delay the production has gone off and the price agreed upon is scaled down until the seller suffers a considerable loss from the original price agreed upon. It has frequently happened that the price of oil declined while the government's delay was working and the value of the property decreased correspondingly. Not satisfied with having the Indian get a good bonus and royalty and retain the fee in the land, the government for several years insisted upon making the Indian a partner also in the purchase money the owner of the lease received when he sold it. All these embarrassing regulations have kept the producers' noses down to the grindstone with nominal profits until now, after six or eight years of financing and development expenses, he finds himself making a bare living and depleted properties on his hands that are hard to sell to advantage.

A New Ruling.

The latest experiment the government is inflicting upon the Oklahoma producers demonstrates the futility of trying to teach department and bureau men any business sense and common fairness. Mr. Ballinger, when secretary of the interior department, was obscessed with the fool notion that the pipe line companies were in collusion to ruin the producers and take their properties at bankrupt prices. Frank Pierce, the retiring assistant secretary, conceived the fool notion that all the big producers were agents of the pipe line companies to wreck the small fellows. Indian Commissioner Valentine is consumed with the fool notion that the pipe line companies have framed up to force the producers to sell their properties at bargain-counter prices and when they have bought them all they will put the price of oil down and ruin the Indian royalty-owners. He therefore refuses to approve the assignments of title papers to the pipe line companies when they have purchased producing properties.

When A. T. Fancher and associates sold their Osage properties to the Prairie Oil and Gas Company, some months ago, the assignment was up for approval, but it has not yet been approved, the department refusing its approval on the ground that the pipe line company was trying to buy out all producers and monopolize the field. John Dyson sold a half-section of undeveloped land to the Prairie for $8,000, and approval of that assignment is withheld for the same reason. Another assignment to the Prairie covering leases in the same neighborhood is also withheld for the same reason. Another pipe line company has an Osage assignment held up for the same reason. Mr. Fancher went to Washington with his attorney to induce the department to approve his assignment, but the bureau head was unyielding.

In this emergency the Oklahoma Oil and Gas Producers Association was appealed to to urge the department to be reasonable. President Perry at once communicated with all the executive officers of the association and as many members as could be reached, urging their official protest against the arbitrary and absurd decision of the department. They all responded affirmatively and President Perry prepared a short brief setting forth the damage such a ruling is causing Oklahoma producers and forwarded the document to Washington. He very convincingly showed that the pipe line companies, in the very nature of the business, were about the only purchasers the producers could look to when desirous of selling their leases, and with that avenue closed they are simply marooned and their investment partially confiscated. The brief states that very little profit has ever been taken from the development of the Oklahoma oil fields and that business necessities at this time compel some producers to dispose of their properties to pay debts and avoid contracting other debts. It also urged that, lacking means to develop raw leases, a sale of old production would enable the seller to develop new territory and add to Indian royalties. It was pointed out that if the pipe line companies are eliminated as purchasers the alternative would be foreign syndicates, and experience has demonstrated that little could be expected in the way of relief from that source. It was suggested that producers in all fields had universally gone to the pipe line companies first when wanting to sell producing properties and that they were the logical purchasers. When pipe line companies had all the production they wanted the history of the industry showed that better prices were paid for crude, which would be beneficial to the Indian royalty-owners.

The letter was a strong condemnation of the department policy, coming from the producers' association, and ought to convince that bureau of the absurdity and unfairness of its position. The new secretary of the interior department, Mr. Fisher, and his assistant, Samuel Adams—who takes charge today—are credited with intelligence and a desire to be fair to all interests, and it is to be hoped he is strong enough to change the narrow policies that have prevailed so long, but past experience and forecasts for the future are not especially encouraging. Wherever the government controls lands and Indian reservations and allotments it is impossible for white citizens to make any headway against crazy conservation theories and political expedients that are injected into all the government's intercourse with the industrial development of natural resources. The government insists that 10 per cent profit is enough for oil producers on actual production and it makes no reservation or allowance for the money wasted in dry holes and unproductive leases. The idea that an oil producer can not sell his property to any buyer that offers the price is abhorrent to every rule of equity and business intelligence and can not be too severely condemned from any angle.

May Results.

In advance of the official field statistics for May there seems to have been fewer wells completed than in April, with less new work in sight. New production will likely be less than in April also, as a good many dry holes have been reported in May and not many big wells. The Prairie Oil and Gas Company's runs and deliveries were nearly equal for the first 21 days of May, being a little over 87,000 bbls. a day, and only about 500 bbls. a day was taken from storage in excess of runs from wells. The Gulf Pipe Line Company has been running about 25,600 bbls. a day for the last three months and putting a little of it in storage. The Texas Company has been running about 22,000 bbls. a day. Producers say production is declining all over the field, but the pipe line companies appear to be getting all they can conveniently handle through their lines, and they have no immediate need for more than that.

The Osage Pool.

The Finance Oil Company and the Barnsdall Oil Company have completed several good wells in the Osage Junction pool during the week, one of them making 2,500 bbls. and one 1,500 bbls., with several ordinary producers, serving to hold the production steady at around 21,000 bbls. a day. The Northwestern Oil Company's No. 3 is about a 150-bbl. well, a location west of the initial well, which is still making 1,100 bbls. No. 4, a location northeast, is making 100 bbls. an hour, No. 5 due and not looking good. No extension of the producing area developed since last week's report. The test in section 20-22-8, four miles north of production and just south of Hominy, was a complete failure, no oil or gas showing, although there was 100 feet of solid sand. It seems to be a rule that when an unusually heavy body of sand shows there is no oil, the Glenn pool being a notable exception. In the eastern and northern part of the Osage reservation completions were all quite ordinary and no extensions have been reported.

The Pawnee Pool.

Some very good wells are showing in section 3-20-8, in the heart of the Pawnee county pool southeast of Cleveland, but the limits of production are not being widened perceptibly. The Paova Oil Company's No. 4 on the Warren land, section 3, is the best well yet drilled, making 700 bbls. C. J. Wrightsman's No. 3 on the adjoining lease is easily good for 500 bbls. and the Selby Oil Company's No. 2, adjoining, is 200 bbls. Work is active on the leases showing good, but the production of the pool has not been above 3,500 bbls., unless the last two good wells run it up to 4,000 bbls. As far as it goes it is a very nice pool, but there seems to be very little chance of extending it far in any direction, as dry holes have been found on all sides except to the southwest. Pretty stiff prices are asked for inside leases, the Roudebush 120 acres in section 3 being held at $150,000, with only one small well on it. Drilling to the south and southeast, in Creek county, has so far developed nothing but failures.

Bird Creek District.

The best well for some time in the Bird Creek district is No. 11 on the Orville Thomas land, section 24-20-12, for the Los Angeles-Cherokee Oil Company. It is a 300-bbl. producer. The Hill Oil Company has a 75-bbl. well on the Payne land adjoining and the Damon Oil Company's first test on the Jacob Lewis land, section 18-20-13, north of the Flat Rock pool, is a 75-bbl. well. This well is farther north than anything between Tulsa and Turley and seems to lead to a connection with several wells at Turley, except the McDonnell 60-bbl. well on the Phillips land, section 31-21-13. Bird creek is territory that has been drilled over for some years, with certain areas looked on as dry, but spurs are continually being found all the way from Tulsa to Skiatook. Gueiss & Co. have a 25-bbl. well offsetting the Barnsdall wells on lot 91, on the Cherokee side of the line, a nook of territory not previously counted any good. The Barnsdall Oil Company's No. 6, on the south line of lot 91, Osage, a location south of a gas well on lot 91, is also a gas well. Black, Schlaet & Rider have four good wells on the south line of lot 90, better than 100 bbls., and have two drilling. There are a good many locations in the Bird creek district to be drilled that are sure for wells of 25 to 100 bbls.

Lower Creek Country.

During the week nothing has developed in the lower Creek country except the Harry Evans and King Brothers' well in the southwest quarter of the northeast quarter of section 18-15-14, northwest corner of the Twin Hills development, where the first test is a 90-bbl. well, two locations northwest of production. No. 2 will be started. It seems to be a spur. Six miles west, in the northwest quarter of section 18-14-13, a mile east and south of production at Preston, Martin & Co. have a 60-bbl. well. A few wells are drilling in every district in the lower country, some of them strictly wildcat ventures, but nothing new has been opened up. Moore & Elyea are down 2,500 feet in their test southeast of Morris, section 36-13-14, and Howard Galbreath and associates have a dry one in their test in section 3-13-12, southeast of Okmulgee. Several wildcat locations are drilling between Muskogee and Wainwright.

Several tests are drilling in the western and southwestern part of Pittsburg county, west of McAlester, with one failure just completed, at Quinton. The Test Oil Company is 1,000 feet deep, section 26-5-12.

Two tests are drilling at Madill, with a dry one just completed at Woodville, in the same county.

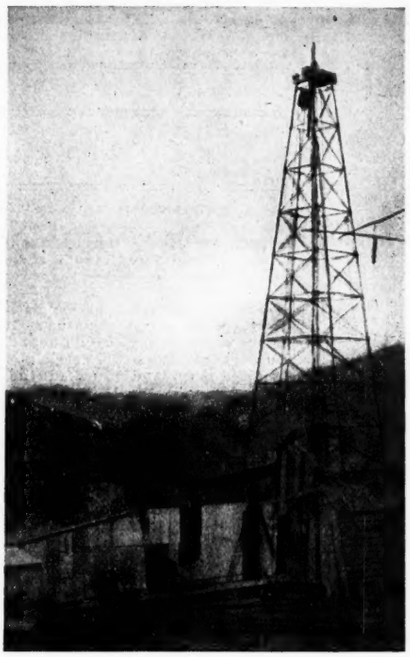
Near Spiro and Pouteau, Bartlesville and Fort Smith parties are drilling for gas, in Leflore county, and several fair gassers have been secured. Of course this wildcatting is purely speculative and in places so remote from either oil or gas production that they are considered very long chances, but wildcatting always finds new fields and every wildcat well is worth watching. A test will be drilled three miles west of Kinto.

The Wagoner Field.

Dr. Gammon's third well on the Thielker land, or Julia Green allotment, section 36-18-17, about three miles northwest of Wagoner, had 25 feet of sand and was shot in a big hole with 180 quarts. The first 24 hours production was 80 bbls. of 42 gravity oil at 270 feet deep, which looks like a find because of the cheapness of drilling and operation. The Yoke test in section 15-18-18, several miles northeast of the Gammon well, was reported dry at 300 feet, but will go to deeper formations. Half a dozen wells are drilling in an area of five miles and the activity prevails in leasing and it will be thoroughly tested out in quick time and at little expense. There is a long stretch of country in ranges 17 and 18, from east of Alluwe, in township 25, down to Muskogee, in township 14, that carries several shallow sands in which good showings have been obtained, with varying shades of oil, and it will be prospected now that big-well territory is getting scarce.

Shallow Sand Developments.

Nothing new has developed in the Delaware extension during the week, except several dry holes and light oil



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and water wells, which are discouraging to a further extension. In section 7-27-15, north of the main trend, Gunsburg & Forman have several good wells, one of them 300 bbls., and an offset to the north and west is a 25-bbl. well. Gunsburg & Forman also got a 7,000,000 gasser in section 27-28-15, northwest of Lenapah in their first and their second test showed for 100 bbls. The Phillips test, reported dry last week, on the Tehee land, section 12-27-14, was drilled a little deeper and shot with 180 quarts and developed a 25-bbl. well. Sam Bell is due with a test on the S. Pee land, section 4-27-14, west of anything. There is a noticeable slump in field work in the Delaware field and the shallow sand operators who have stuck to that field for years are beginning to scatter out looking for new territory.

Some drilling is going on in the shallow sand belts of the Hogshooter, Ochelata, Bartlesville, Dewey and Copan districts, but the deep sand part of the northern Cherokee is rather quiet. That part of Oklahoma is now an old field that has been pretty well defined and given over to regular oil farmers who cultivate their holdings just like the grain farmer, only the grain farmer can sell his stuff to anybody he wants to, while the oil farmer has to be very careful and demand references as to moral standing of the buyers before he can turn loose. They will have to organize an Oil Man's Christian Association as a sort of clearing house.

Paid Bills.

The Central Fuel Oil Company Tuesday paid off $40,000 contractors' and other bills and announces that all bills against the company will be paid by June 15. The statement is reported as coming from the Central company that The Texas Company has never paid for any of the oil run from the company's wells.

Northwest Texas.

Tulsa operators who have just returned from a visit to Electra and Vernon, in Northwest Texas, report that no wells have been completed near Vernon, as reported in The Journal several weeks ago, but the Producers Oil Company is drilling several tests near that town, in Wilbarger county. It is also reported that the Producers company has nine wells completed and shut in near Electra, all supposed to be producers. The Clayco Oil and Pipe Line Company's well on the Putnam land, near Electra, is making 300 bbls. a day, all shipped to Corsicana. This well has produced 18,000 bbls. of 42 gravity oil, the depth of it being 1,620 feet, and is a fine producer.

ANOTHER CADDO FIRE.

Producers Big Well Comes Back and is Menaced by Flames.

SHREVEPORT, La., May 28.—(Special)—Work is still progressing on the tunnel being dug to extinguish the fire that has been burning in the Caddo field for over two weeks and the task of cutting the casing is now to be started. It is the intention to cut the 10-inch and 8-inch casings and cement off any gas that might be below and then cut the 6-inch pipe and through a small line pump mud and water into the well and try and kill it in that manner. The well is burning more fiercely than at any time since it caught on fire and while only an estimate of the amount of oil burning can be given 15,000 bbls. seems to be the general opinion of the amount being consumed each day, practically 200,000 bbls. having been burnt since the well became ignited.

Another Big Fire.

What threatened for awhile to eclipse the burning well, Harrell No. 7, was the ignition of the Producers Oil Company's big well, Levee Board No. 16 1,500 feet south of west of the Harrell. On Sunday morning at 4 o'clock the gas from the Levee Board well became ignited and instantly the tanks and waste oil around the well was a mass of flames. The well was shut in before the fire reached the connections and only four 1,200 bbl. tanks full of oil and the waste oil was burned, amounting to 30,000 bbls. Two theories are advanced, one being that the gas at the separator at the well became ignited from the Harrell fire and the other that the fire in the boiler at the Ellerbee well of the Standard Oil Company, near by, did the damage.

Well Had Recently Come Back.

The Levee Board well which had sanded up several weeks ago, had been cleaned out and had only produced several days before the fire. It started off at 5,000 bbls. but increased to 13,000 bbls. of good oil and 7,000 bbls. of water and was making this amount when it caught. This well prior to its sanding up had been the largest gross producer of the field, reaching a production of 32,000 bbls. daily, only half of which was oil. The well produced for only a few days, having been shut in several times on account of lack of storage to take care of the oil, which did not treat out readily. It is the second time that the tanks at this well have been destroyed by fire.

Harrell No. 6 Stops.

The Producers No. 6 Harrell, the first test in this district, about 500 feet from the Levee Board No. 16, which had been making 1,000 bbls. of good oil, quit when the Levee Board well came back and is now dead. Other tests in the same district known as the Monterey extension, have to date proved failures, the latest being the Gulf Refining Company's Hunsicker No. 1 in section 9-21-16. This well showed small but a test proved it no good and it will be deepened. Of the tests made by the Standard Oil Company, the Wooley No. 1 is below 2,400 feet and going deeper, the Thomason No. 1 is a salt water well and efforts are being made to perforate an upper sand; Ellerbee No. 1 is close to 2,400 feet, in salt water, although a split joint of casing is blamed for the water, and No. 2 on the same lease is not showing up very well. The Sun Company's test two miles north of the above wells, has a bad fishing job and the test of the Caddo Gas and Oil Company to the northwest across the Texas line, is not looking very attractive.

Other Completions Small.

The completions for the week are uniformly small, several of the wells which in former reports have showed for small wells, have been put to pumpin and this week's record gives the production. The Producers Oil Company completed No. 4 Atlanta, a 200-bbl. well, the Standard Oil Company's No. 28 Stiles, is a 50-bbl. pumper, No. 34 Stiles, an old well delayed by a fishing job, was perforated in the 6-inch casing and is making 70 bbls., and Shreveport-Texarkana No. 5, is pumping 25 bbls. The Higgins Oil and Fuel Company No. 4 Breathitt, is pumping 150 bbls., the Rogers Oil Company No. 10 Rogers made a flow and has been shut in, and looks to be good for 100 bbls., and the same company's No. 1 will make a good pumper, the fluid standing up 800 feet in the hole. E. S. Cayce & Co.'s No. 1 Hardy, is dry and abandoned.

In the shallow sand, The Busch-Everett Company completed Allen No. 3, a 100-bbl. well, and the Caddo Gas and Oil Company completed Owens No. 2, good for 200 bbls., and Edwards No. 2, a dry gasser completed a short time ago, came in on oil last week, making 15 bbls.

Gulf Company Loses Station.

Late Sunday night, the Gulf Pipe Line Company lost its Chatterton station in Texas on the Caddo-Lufkin line by fire, the night engineer, F. H. Blocker, being burned so badly that he died on the way to the Shreveport sanitarium. Blocker was carrying a lighted lantern, when an overhead check valve broke and he was covered with oil from the line, catching fire from the lantern. The station was completely destroyed but as it was a small one, the financial loss is not great.

The production of the field is up again, due to the Levee Board well coming back, giving the field a total of 30,000 bbls. If the fire in Harrell No. 7 can be extinguished before it burns itself out, the total of the field will probably exceed 40,000 bbls.

A. V. B.

GULF COAST REGION

BAD STORM AT VINTON.

Practically Every Derrick Destroyed—Some Spindletop Wells.

BEAUMONT, Tex., May 31.—(Special)—The Vinton oil field experienced its first real storm Tuesday afteroon when a miniature cyclone and cloudburst tore down 61 derricks, several small houses and knocked the stacks off nearly all the boilers in the field. The storm began at 4:15 p. m. and lasted until 5:45, during which time an estimated rainfall of between four and five inches covered the field. Practically every derrick in the field was blown down, the Vinton Petroleum Company and the Gulf Refining Company being the heaviest losers, the Gulf losing 17 and the Vinton Company 9. Other companies which suffered were: Wilson & Tucker, 3 derricks; the Stewart Oil Company, 5; The Producers Oil Company, 3; the Ninety-nine Company, 2; The Crater Oil Company, 1; Smith and Newman and the Newman Trustees, 2 each; the Gray Oil Company, 2; G. C. Wood, 2; the Sabine Oil and Mineral Company, 3; the Hooks Oil Company, 2; Hap Avery, 1; the Hillside Oil Company, 1; the Lake Arthur Oil Company, 1; the Crowley Oil Company, 1; the Heywood Oil Company, 1, and the Producers-Gulf joint well, 1. Although most of the derricks were over pumping wells, in a great many instances, the standard rigs were not destroyed and not much production was lost. The work of rebuilding is being rushed and the field will present a normal appearance in a few days.

Big Wells at Spindletop.

The past few days have seen a revival of interest in the Spindletop field, three wells, with an output of 1,800 bbls. being the cause. L. F. Benkenstein and associates, drilling on the old Cissell lease in the southwestern portion of the field, completed a well which flowed at the rate of 2,400 bbls. and is now reported to be doing from 1,500 to 2,000 bbls. per day. This part of the field is north of the "Flats" on which most of the drilling for the past six months has been done. J. M. Thresher put his well to pumping and it is

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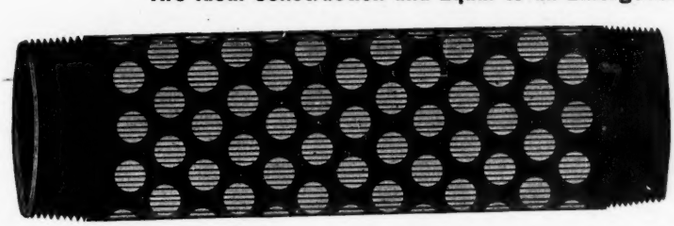

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making 75 bbls., and the Unity Oil Company brought in another good well in the old Yellow Pine district, Gladys No. 3, making 200 bbls.

DULL WEEK AT VINTON.

Spindletop Far From Dead—Reports of All Fields.

BEAUMONT, Tex., May 26.—(Special.)—Vinton again experienced a very quiet week, the completion of a shallow pumping well known as Geo. W. Newman, Trustee, drilled to 1,150 feet, making 15 bbls. Three wells completed in the pool failed to flow and standard rigs are being built to pump them. The Gulf Refining Company's No. 10 Gardiner-Noble-Gray; the Producers Oil Company's No. 5 Gray and the Ninety-Nine Pumping Company's No. 2 on the same lease were the completions. The Gulf's test was deepened but proved no better at the lower depth and will be pumped from the sand above. The failure of these wells to flow may mark the passing of the gushers, although the tests of the Vinton Petroleum Company, now drilling for the shallow sand found by No. 13, may flow equally as good as the well just mentioned.

Nearing Completion.

The Producers' Oil Company No. 4 Gray has sidetracked drill stem and is drilling in; the Vinton Petroleum Company is setting a string of 4½-inch casing in No. 11 Gray; Wilson & Tucker are sidetracking a liner in No. 2 Vincent; the Vinton Petroleum Company is again trying to set strainer in the test taken over from the Hooks Oil Company on the Gray; The McShayne Lumber Company No. 1 Perry is setting 6-inch below 2,425 feet and the Gulf company's test west of the lake is below the sand found in the producing wells and looks like a dry hole.

Gets Big Water Flow.

The test known as the Newman Syndicate, drilling in the lake bed, is fishing for a joint of pipe and a roller bit. An artesian sulphur water flow has been struck, the well making 10,000 bbls. daily. Of the other two tests in the lake, the Producers company is down 600 feet in a second hole, having lost the first, and the Crater Oil Company has set a string of 6-inch at 900 feet and still has trouble in getting returns.

The Stewart Oil Company quit its test on the Gray lease and will move over 100 feet west and drill a hole to test a showing found in the first test at 1,500 feet. The Crowley Oil and Mineral Company is rigging up standard tools to drill the hard rock which has been holding back the work. G. C. Wood, the Lake Arthur Oil Company and the Ida Oil Company are not operating and Caffrey & Martel are rigging up. The production of the field is 12,000 bbls.

Jennings.

The Producers Oil Company bailed No. 95 Latreille, the well acting for a time as though it would flow. It is standing well up in oil and will make a good pumper. A standard rig is being built. It has been many months since a well was completed in this field, at one time operations having been practically suspended. A good well will probably see a resumption in drilling. The Crowley Oil and Mineral Company is drilling No. 54 fee, having set 6-inch casing.

Welsh.

The Nezpique Oil Company has taken over the Welsh Development Company's holdings and is drilling a test.

The Texas Fields.

J. M. Thresher brought in his No. 1 on the Rowe lease at Spindletop, the well pumping at the rate of 300 bbls. for a little while but soon sanded up and an inserted strainer is being set. The well looked as though it might flow, being one of the best looking tests made recently. The Unity Oil Company has a test, No. 3 Gladys, which is looking good and will make a nice pumper. Spindletop is furnishing its little surprises every week, proving that it is far from dead, recent flowing wells which start off as high as 1,000 bbls. making the game profitable. At present, ten wells are drilling and two rigs up. S. F. Stollenwerck's No. 8 Rowe, a water well, is resetting strainer, and Swearengen, Wherry & Co. are building a standard rig to pump a water well in which strainer was reset. Several other tests have set casing and are drilling in.

Markham.

The bringing in of a 100-bbl. well by the Unidilla Oil Company on the Smith tract about 800 feet southwest of the Producers Oil Company's wells on the Clem tract, has caused a renewed interest in the field and it is probable that some tests in a southwesterly direction may be started. The well is the most southerly producer and a large pool may lie in that direction. The Prairie Oil Company's test to the north of the field is a failure resulting in salt water. The Clem Oil Company's No. 5 Myers is reported to be showing good and will probably make a pumper. The Empire Oil Company, drilling a test on the Cherry lease to the southwest of production, has not been bailed, although it is practically completed. The Hardy Oil Company has made a new location for No. 33 Smith and is rigging up.

Humble.

Three wells were completed in this field during the week, Hoppes Bros.' No. 1 Producers, a 10-bbl. well; McKallip Bros.' No. 6 Dannebaum, a 30-bbl. pumper, and R. L. Blaffer Special No. 11 Barrett, making 40 bbls. The Sun Company is nearly ready to set 6-inch casing in its second test on the River lease, to the north of the proven field. The first test is still making 125 bbls.

Sour Lake.

Three wells were completed the past week, two of which were producers and one dry. The Minor Oil Company completed No. 30 fee, a 30-bbl. well, and The Texas Company completed No. 178 fee, making 10 bbls. J. S. Jackson completed No. 2 Matthews, a dry hole.

Batson.

One well was completed, Buchanan & Fitzsimmons bringing in No. 4 Brittian, pumping 12 bbls. The Paraffine Oil Company No. 2 Colorado-Syndicate, which has been pumping nothing but water, will be deepened. The Guffey company is setting strainer on No. 121 Wing; the Christian Oil Company is drilling No. 29 Milhome and W. C. Turnbow is drilling No. 8 Huntington.

Saratoga.

The Sun Company's shallow well still flows at the rate of 125 bbls. No completions were reported, three wells are drilling and three rigs are up.

A. V. B.

MEXICO

MEXICAN CRUDE EXPORTED.

Standard's First Cargo—Rushing Storage—Drilling Quiet—Notes.

TAMPICO, Mex., May 26.—(Special.)—By far the most important event in oil circles in Mexico for some time was the arrival in port of the Standard Oil Company's tank steamer, Captain Lucas. She cleared for Sabine Pass, Tex., Sunday loaded with 32,000 bbls. of crude purchased from the Huasteca Petroleum Company's storage tanks at Tampico. This is the first export shipment of crude oil from Mexico and marks the beginning of what promises to become a heavy trade. Tampico is a fine harbor and one of the most convenient ports for handling petroleum cargoes, with a short trip to all Texas and Louisiana ports. The Atlantic seaboard also is accessible and will afford a good market for the surplus output of the Mexican fields. Storage facilities are already under construction that will provide a surplus of from 6,000,000 to 8,000,000 bbls. of oil from which to make shipments to consumers in Mexico and the United States, assuring a steady supply. With commendable foresight the Doheny interests are completing storage enough to cover every current demand, after which the development of their extensive holdings can be safely undertaken. The Pearson interests are also constructing reserve storage.

Contract Reported.

It is reported, on apparently good authority, that the Southern Pacific Railroad Company has signed a contract with the Huasteca Petroleum Company to take 8,000 bbls. a day for use in its locomotives in the United States.

Storage Construction.

It is now about nine months since the Huasteca Petroleum Company completed its good well at Juan Casiano, and during that time it has constructed 35 iron tanks of 55,000 bbls. capacity, on its tank farm between the Panuco river and the Tuxpam canal, at Tampico, known as Lot 64. These iron tanks have all been filled from the one well and the oil is now going through the pipe line into an 850,000-bbl. concrete reservoir on the same farm. Joe Connelly, in charge of the work for the Petroleum Iron Works, has 400 men at work at Kilometer 6, near the Tuxpam canal, and is completing 12 to 15 tanks a month for the Huasteca people.

The Pearson interests have concluded that their English tankies and material can hardly keep up with American old-timers and have given a contract to the Petroleum Iron Works, of Sharon, Pa., for 50 iron tanks of 55,000-bbl. capacity, to be put up at different points between Tampico and Tuxpam. The Pearsons have been handling about 20,000 bbls. a day from the Portrero del Llano storage reservoir. The big well is safely shut in or was the last heard from it, and will be held until sufficient pipe line and storage facilities are completed to reduce the reservoir storage, when it will be opened and allowed to produce as much as needed.

Texas Company Activity.

The survey is nearly completed for the 8-inch pipe line The Texas Company, or its subsidiaries, will lay from Panuco to Tampico, where an 800-acre tract has been purchased for terminal grounds, on the south side of the Panuco river. D. Marshall, in charge of the marine department of The Texas Company; James McMahon, superintendent of pipe lines for the Mexican Fuel Oil Company in Mexico, and Engineer Meade are in Tampico and pushing the work. J. W. Sloan of Tulsa, Okla., and J. T. Crotty of Houston, manager of the Republic Supply Company, have arrived also and are helping along their ends of the general construction and material work necessary to place the company in position to produce, pipe, store and ship crude oil from Mexico to the Texas terminals and fuel oil delivery points. The Texas Company is an aggressive organization and it is not likely that it will be behind competing companies.

The Huasteca Petroleum Company, the Mexican Eagle Petroleum Company, The Texas Company, the Standard Oil Company and Waters Pierce Oil Company make five strong producing, piping, refining and distributing organizations in Mexico, that ought to and undoubtedly will take care of a big production, and enable producing companies to proceed with the rapid development of their holdings.

Adding to Refinery.

The Waters Pierce Oil Company is now running its Tampico refinery to its full capacity, 5,000 bbls. a day, and is going to enlarge its paraffin plant to five times its present capacity, which fact must be taken to mean that the crude oil of Mexico, or some of it at least, contains by-products not generally credited to low-gravity crude of

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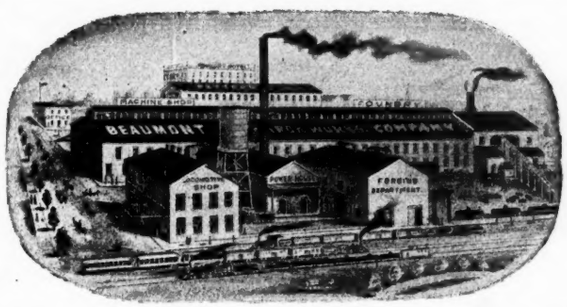

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an asphalt base. The product of the gusher wells in the Juan Casiano and Portrero del Llano end of the field is a lively fluid full of gas and susceptible of processes that have been rather surprising.

Development Notes.

Recent completions have not been very encouraging in the north end of the field. The Scottish-Mexican Oil Company's test above Panuco, about 70 miles west of Tampico, is 2,400 feet deep and nothing showing. Max Whittier's Tampico Petroleum Company's third test on the Lemon hacienda adjoining the Ebano development is called a failure at 2,350 feet, making two dry ones and a 25-bbl. well for the lease. Two more rigs are going up on the same property. The Tampico Fruit Company's well at Caracol Springs is still in the drilling list at 2,800 feet, with gas blowouts every screw.

The Electra Oil Company's (Jeffrey's) test on the Tancochin river, 10 miles east of the Juan Casiano well, is a small well at 600 feet, but going on for Dos Bocas formation.

Two More Deaths.

Two more accidental deaths were reported last week. L. C. O'Brien was drowned in the Lava river and the daughter of Peter Warner was burned to death at Atascador. J. B. S.

WILL BAR STANDARD.

Subsidiary Companies Cannot File Leases on Indian Lands.

WASHINGTON, May 28.—Subsidiaries of the Standard Oil Company will not be able to lease any more Oklahoma oil lands belonging to the five civilized tribes until the recent decree of the United States Supreme Court, ordering a dissolution of the trust, is put into effect. This is the statement made here by Secretary Fisher of the department of the interior.

The secretary takes the position that these lands must be protected by the government from a company which has been declared in unlawful restraint of trade by the highest tribunal in the land. He does not think that an executive department of the government has a rght to go ahead dealing with a corporation which the federal courts have found to be doing business in violation of the federal laws.

Therefore the subsidiary companies which have heretofore been recognized by the department of the interior and which has been treated with, just as any other company, will, until the decree becomes effective and the New Jersey corporation is dissolved, be ignored by the department.

"I shall not approve any more leases of oil lands to the subsidiaries of the Standard Oil Company," said the secretary, "until I am satisfied that the Supreme Court's decree has been complied with. In the past we have made no distinction in leasing the oil properties of the Indians in Oklahoma, but the courts have found that the Standard Oil Company is a monopoly and the department of the interior will refuse to negotiate with this company or any of its recognized subsidiaries until the decree becomes a fact before the law."

This is the first important move made by the administration under the decision of the Supreme Court, ordering the dissolution of the monopoly. That the effects of the secretary's ruling will be far reaching, as it applies to the leasing and further development of the Indian oil lands, is easily recognized. The secretary himself understands this.

In discussing the matter further he pointed out that it was necessary that the oil properties be safeguarded and that this fact gave rise to many problems. These problems, he said, would have to be met and solved by the department.

For instance, said the secretary, there are many oil wells in the Oklahoma fields which are now leased by Standard Oil subsidiaries. Some of them are wells which flow continuously. It would be folly to order them abandoned and the department will take no such step. The petroleum, he said, from these wells will be marketed just the same and no losses be inflicted upon the lessees or the property owners. But where applications for new leases from the unlawful concerns are offered, the department will maintain its policy. No such leases will be considered. At least none will be until it is proven to the satisfaction of the courts that the Standard Oil Company of New Jersey, which is the holding company, has ceased to exercise any control whatever over the minor companies making the applications.

While discussing the relationship of the Standard Oil to the Oklahoma fields the secretary said that he disliked the methods of some of the present leaseholders in storing their oil, while waiting for better prices, but at the same time paying the Indians for their oil upon the basis of the present market prices. He said that was being done by more than one leaseholder to the disadvantage of the Indians.

"In a short time," added the secretary, "the department will announce a new policy with regard to these methods. I am not quite ready to state what the department will exact of the leaseholders in the Indians' behalf, but you can be certain that some changes will be made in the present system of remuneration to the owners of these lands."

EASTERN FIELDS

ILLINOIS, PENNSYLVANIA, WEST VIRGINIA, OHIO, INDIANA, KENTUCKY

CARLYLE STILL ACTIVE.

Zieren Well Dry—More Producers Drilled In—Field Notes.

CARLYLE, Ill., June 1.—(Special)—The Carlyle field has resolved itself into a proposition where it is anybody's guess which way the pool will extend. With the drilling in of a duster on the H. Zieren farm, section 36, Wheatfield township, and the bringing in of a couple of good wells, the situation is made more complexing. The Zieren well, which is located a couple of miles northeast of the producers, was an important test as it would open up a large strip of territory if a producer. No sand was found, which makes that end of the field look like a bad proposition. However, to offset the duster Treat & Crawford drilled in a nice well on the Leo. Deter property in section 10, Wade township. It is showing for about 100 bbls. The Surpass Oil Company's No. 2 on the Schlafly farm, section 3, is showing for a good well. It is making some gas and spraying oil.

The Surpass Oil Company is drilling No. 3 on the Murphy farm, section 3, and is on top of the sand. The same company's No. 1 on the A. Hempen, section 10, is in and good for about 200 bbls. A rig is up for No. 2. Murphy No. 3 is directly opposite the Schlafly No. 1, the Hempen No. 1 and the Smith No. 1 and ought to be a good well. The Surpass company is down 800 feet in No. 1 on the William Sauterman farm, section 3.

F. B. Ranger has been underreaming No. 3 on the Maria Smith farm, section 3, and it will be in today. Drilling will start on No. 4 in a few days. Andy Bruner is drilling up a bailer in his test on the Louis Becker farm, section 3. The well is on top of the sand.

On the G. Peek heirs' farm, section 8, Wheatfield township, eight miles north and four miles west of Carlyle, Selby, Cisler & Skelly are down 800 feet.

About two miles east of the producing wells in Wade township the Ohio Oil Company drilled in a test on the W. M. Kellerman farm, section 12, Carlyle township, and it looks like a duster. It was drilled to a depth of 1,030 feet and a broken sand encountered, with water much in evidence.

C. B. Shafer is putting in casing on the L. Laemel farm, section 33, Wheatfield township, northwest of the roducers. Snowden Bros. are still drilling on the C. Morelock farm, section 35, Wheatfield township. The Ohio Oil Company is down about 300 feet in its test on the A. Beckmeyer farm, section 22, Wade township.

F. B. Ranger has a crooked hole in his test on the Henry Laux farm, section 8 Carlyle township. He is down 800 feet. M. L. Zanhiser is down 1,000 feet in his test on the Jane Bond farm, section 6, Carlyle township.

The Surpass Oil Company is nearing the sand in its test on the McCabe farm, section 3, Wade township. The well had a good showing of gas at 850 feet but is being drilled to the oil pay.

The Leschen Oil Company is down about 900 feet in its test on the Dienpenbrock farm, section 11. The Ohio Oil Company's test on the Mary Herzog farm, section 23, Wade township, will be drilled down to make a deep test. It is now about 1,200 feet.

The Sayer Oil and Gas Company, of Chicago, is drilling a test on the John Thomas farm, section 12, Meridian township. Shafer & Smathers are drilling a test in the northwest quarter of the southeast quarter of section 34, Wheatfield township. They are about 1,025 deep and ought to be in today.

The Producers Oil Company is drilling on the W. C. Becktold farm, four and a half miles northwest of Frogtown and seven miles northwest of the Murphy wells.

Petty Township Active.

Petty township is the real active spot for development work in the deep sand field, and shows by far more drilling wells and rigs than any of the other districts. Nothing large has been found in the township for some time but wells showing a production as high as 400 bbls. have been drilled during the past several weeks, but none in the 1,000-bbl. class, as was the case a year or so ago. These producers were found mostly in the Tracy deep sand.

The best of the late completions is Curtis, Aiken and associates' No. 17 on the R. L. Fitch farm, section 30,. The well produced 375 bbls. from the Kirkwood sand. No. 18, same farm, is drilling.

The Ohio Oil Company's No. 2 on the southeast corner of the J. W. Armitage farm, section 26, produced 25 bbls. from the 1,500-foot sand. Same company's No. 8 C. C. Bowen farm, section 19, produced 25 bbls., while the test on the J. W. Roderick farm, section 26, pumped 25 bbls. from the 1,500-foot sand. Mooney & Bell have drilled in a 140-bbl. producer in No. 2 A. S. Waggoner farm, section 35. The oil was found in the 1,500-foot sand.

W. C. McBride's No. 18 on the southeast corner of the William Crump 40-acres, section 30, same township, produced 150 bbls. The Ohio Oil Company's No. 2 on the southwest corner of the F. S. Ketterman farm, section 26, is a 100-bbl. producer from the 1,500-foot sand.

The Ohio Oil Company is drilling the following wells in Petty township: Nos. 8 and 9 Perry King No. 1 farm, section 24; Nos. 9 and 12 L. D. Sutton farm, section 30; No. 3 I. B. Smith No. 1 farm, section 11; No. 3 Scott Gray farm, section 13; No. 28 W. R. Crackle farm, section 29; No. 18 A. R. Applegate, trustee, farm, section 13; No. 5 A. Westall 74-acre farm, section 12; No. 8 R. M. Hardacre farm No. 2 farm, section 7; No. 4 George B. Cessna farm, section 11; No. 5 Nancy J. Updike farm, section 1; No. 1 M. C. Coder farm, section 26; No. 6. I. B. Smith No. 2 farm, section 7; No. 4 John W. Bolles No. 2 farm, section 18; No. 2 George W. Gray No. 4 farm, section 12; No. 6 C. S. Waggoner farm, section 2; No. 1 T. J. Smith farm, section 26; No. 4 H. D. Regal No. 2 farm, section 35; No. 2 C. Mushrush farm, section 35; No. 3 E. L. Gray farm, section 36; No. 3 S. A. Longnecker farm, section 36, and No. 2 Ethel M. Smith farm, section 36.

W. C. McBride is drilling No. 8 E. Dalrymple farm, section 29; No. 9 William Ross heirs' farm, section 29, and No. 19 William Crump 40-acres, section 19. Whitehill & Larkin are still at work on their No. 2 Jacob Waggoner farm, section 26, and have been delayed by fishing jobs and other trouble. Craig & Lowrie are drilling No. 5 Scott Gray farm, section 13. The Snowden Bros. are drilling Nos. 4, 5 and 6 Bert Childress farm, section 24. The Central Refining Company is drilling Nos. 1 and 2 Jacob Waggoner farm, section 26. E. N. Gillespie is drilling No. 2 William Lester farm, section 6, also a test on the W. M. Updike farm, section 6.

The Bridgeport Oil Company is drilling a test on the S. S. Updike farm, section 35; No. 12 A. Baltzell farm, section 30; No. 1 A. A. Eaton farm, section 35, and No. 11 Chester Willey farm, section 30. The Pemberton Oil and Gas Company is drilling No. 19 W. H. Pemberton farm, section 30. The Haywood Oil Company is drilling No. 7 Nancy J. Updike farm, section 35. No. 6 on this farm, pumped 25 bbls.

Other Illinois Districts.

The best that Lawrence township, Lawrence county, could produce was a 40-bbl. well drilled by Snowden Bros. in their test on the southeast corner of the Thomas Waggoner farm, section 11.

Dennison township, Lawrence county, also finished some fair wells during the past few days. The Ohio Oil Company's No. 9 on the Theodore Leighty farm, section 36, produced 300 bbls. from a depth of 1,816 feet. Same company's No. 11 T. I. Gould farm, section 2, produced 250 bbls. and No. 13 A. B. Buchannan farm, section 2, about 250 bbls. Same company's No. 4 on the northwest corner of the Elliott Leighty farm, section 6, produced 100 bbls. from a depth of 1,632 feet. Bruner, Bartlett and associates' No. 2 on the northwest corner of the S. J. Gee farm, section 36, showed a production of 210 bbls. from a depth of 1,806 feet.

In Montgomery township, Crawford county, north of the Lawrence county field, Lester, Adams and associates drilled in a test on the A. M. Welch farm, in the southwest quarter of section 21, and have a duster. The Ambraw Gas Company drilled in a duster in a test on the southeast corner of the P. Hale farm, in the southwest quarter of section 23.

The Associated Producers Company's No. 13 N. Lindsay farm, section 20, pumped 40 bbls.

Duster in Kentucky.

The Kentucky-Tennessee field is dragging along at the same old pace, the completed wells each week not adding much to the production. The last report gives the New Domain Oil and Gas Company a 2-bbl. pumper in No. 8 on the Rock Creek property in the Parmleyville district, Wayne county, while Rex Carpenter got a duster in a test on the William Dobbs farm in the same district. The runs are averaging about 1,500 bbls. per day with Wayne county still leading in the production. The Ragland district came to the front last week with a total production of 2,853.90 bbls., much larger than is usually reported.

LARGE PRODUCERS SCARCE.

Little Wildcatting Going On—Field Notes.

PITTSBURG, Pa., May 24.—(Special)—Development work in the eastern fields during the past week was almost featureless. Large producers are few and far between and there is nothing in evidence to indicate the probable discovery of any new producing territory in the immediate future. Wildcatting is not prominent in any section, but there is a good deal of work of that character scattered throughout West Virginia. The search for new

production lacks the energy that has characterized operations of that kind in the past.

The only work of an experimental nature that is attracting any attention is located in Kanawha, Clay, and Wayne counties, in the extreme lower southwest portion of West Virginia. Unless some of the eight or ten wells drilling in these counties result in producers the most likely section for strictly new producing territory will be deserted.

During the past week the entire producing area of West Virginia failed to present a single well with an initial production of 100 or more barrels. In fact, the entire producing portion of the state has not at this time an old or new well producing 100 or more barrels a day. Southeastern Ohio has but two, located in the deep sand territory, in Rush Creek township, Fairfield county. The local field has but one, the Schwartz Bros.' well, near Perrysville, in Allegheny county. The last gauge, taken yesterday morning showed a production of 105 bbls.

In the southeastern Ohio fields, the southern and southwestern extension of the deep sand territory in Perry and Hocking counties are the only sections furnishing appreciable deep sand producers. Nearly all of the new production is now coming from that quarter and in starting new work it leads all other parts of the field.

To the north of the field interest is waning. The last four wells completed, expected to show a northern extension, have been dusters or light gassers. It is generally conceded that anything short of a 20-bbl. producer in the deep sand territory is not a paying investment. One firm, which completed its initial well last week, stated that the actual cost to drill and equip the well —a 30-bbl. producer—was a little more than $9,000.

Roane County Leads.

Roane county, W. Va., continues to furnish the most completions and the best average producers. On Laurel fork, Smithfield district, the South Penn Oil Company's test on the George W. Smith farm is through the Big Injun sand and a 25-bbl. producer.

On Lick fork, Spencer district, the Consolidated Oil Company on the J. T. Keplinger farm is through the Berea grit and has a 30-bbl. producer.

On Indian creek of Hughes river, Murphy district, Ritchie county, Smith, Wahn & Co. on the M. M. Snyder farm are through the salt sand and have a duster. It will be drilled to the Big Injun. It is only 400 feet south of the Washburn Oil Company's well on the E. R. Nicholson farm, a natural producer good for 85 bbls. a day. In the same locality, George Rinehart has a rig on the Nutt farm. Cochran & Funk are due in the Big Injun sand at No. 3 on the Summers heirs' farm.

Showing for a Producer.

In Clay district, Monongalia county, the Daybrook Oil and Gas Company's No. 2 on the Isaac Ammons farm is into the top of the Gordon and the hole has filled up 1,000 feet with fluid. On Doll's run, same district, the Union Utility Company is due in the Big Injun on the Martha Miller farm. The same company on the E. A. Morrison heirs' farm is fishing. In Grant district the Hope Natural Gas Company is due in the Big Injun on the John Davis farm. On Little Indian creek the same company is starting a test on the Newton Michael farm. On Big Indian creek, Clay district, the Hagan Oil Company has made a location for No. 6 on the D. J. Eddy farm.

On Loveberry run, Court House distract, Lewis county, the Hope Natural Gas Company on the John McCudden farm is 12 feet into the Gordon and is fishing for a string of tools. On Murphy creek, Sand fork and Goose Pen run the Philadelphia Company is drilling on the O. B. Wheeler, Peter Flesher and Thomas McDermott farms.

On Laurel run, same district, the Reserve Gas Company is due in the sand on the James Murray farm. On Crooked fork, Chidester & Rinehart are starting on the D. H. Linger farm. On Indian fork, the Orlando Oil and Gas Company has made a location on the John Tully farm.

Tests in Wetzel.

On Fallen Timber run, Grant district,

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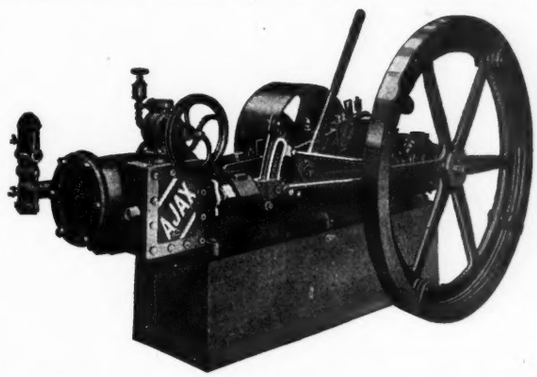

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Wetzel county, N. S. Snyder & Co. are down 1,200 feet on the Elmer E. Ice farm. On the same stream and a part of the same farm, the Sigma Oil Company has made a location. On Aunties run, The Philadelphia Company is building a rig on the Hoge-Robinson farm.

On Fishing creek and Wylie fork, the Parker and Edwards Oil Company is rigging up at No. 3 on the William Wyatt farm and the Carnegie Natural Gas Company is rigging up on the Highly-Furbee farm. On Wylie fork, the Hope Natural Gas Company has started to drill on the Ellen Glover farm. On Price fork, the same company's test on the W. J. Price farm is drilling at 700 feet. On Lynn Camp run, the Hope Company is due in the Big Injun on the A. Hohlman farm.

On Grave creek, Liberty district, Marshall county, Guy Patterson has started to drill on the Guy Patterson farm. On Brush run, Green district, the Hope Natural Gas Company is drilling one and starting a second on the William V. Hoge farm. On Daniels run, Ellsworth district, Harrison county, Hutchinson & Co. are near the top of the 50-foot sand and delayed with a fishing job, on the J. H. Maden farm. On Lamberts run, Eagle district, the White Top Oil Company has made a location for No. 4 on the J. F. Allen farm. In same district, the Philadelphia company is drilling on the A. J. Harbert and E. E. Heldreth farms. On Indian run, Sardis district, the same company has started to drill on the S. L. Smith farm.

Southeastern Ohio.

In the Marietta district, Ohio, Decatur township, Washington county, the Twin Bridge Oil Company's No. 3 on the J. L. Wickens farm is a very light pumper in the Cow Run sand.

In the Chester Hill district, Penn township, Morgan county, the Ohio Fuel Oil Company's No. 2 on the Amanda Hooper farm shows for a 30 or 35-bbl. producer in the Cow Run sand.

MORGAN COUNTY WELLS.

Shallow Field—Good Producers—Drilling Active.

PARKERSBURG, W. Va., May 30.—(Special)—In the shallow sand field of Morgan county in southeastern Ohio, a number of nice wells are being brought in, and considering the cost of the wells and the production it is one of the best gambles that can be found. In the Pennsville and Stockport districts there is quite a stir for leases, as the streak is extending in both directions toward the old Buck Run field to the west and the Macksburg and Dexter City to the east, looking as though there might be another streak developed equal to or better than the Joy, Chesterhill and Moore's Junction field, which was one of the best shallow sand fields in the country. The latest developments in the field extend for about three miles and from two to four locations wide.

Commencing on the west side at the Williams lease, which is owned by the Junction City Oil Company, two wells are located on the property. The Mercer farm owned by the same company has eight producers, while the Benjamin property owned by the Freehold Oil and Gas Company, of Pittsburg, has 12 producers and one dry hole. The Thompson farm, owned by Hennee Bros., has 15 producers and a dry hole. White, Newton & Moore on the Bailey lease have 14 wells and two dry holes. The Ohio Fuel Supply Company has one well and a dry hole on the Amanda Hooper. White, Newton & Moore have a well and a dry hole on the Vanfassen. Ellis & Co. have four wells on the Vanfassen and J. F. Dougan & Co. also have six wells and a dry hole on the Vanfassen. J. B. Hazlett has five producers on the John Pidgeon farm.

The last well drilled by Hazlett on the Barkhurst farm, a few rods east of production, was dry, and shows a change in the trend of the sand, and from former developments it would indicate a turn to the southeast, making a line parallel to the Chesterhill and Moore's Junction streak.

At present there are 14 strings of tools running in the field and there should be much new work in the next few months. Wells are coming in from 5 to 100 bbls. per day, and as the pay is found from 300 to 500 feet the proposition looks good.

EASTERN FIELDS PICKING UP.

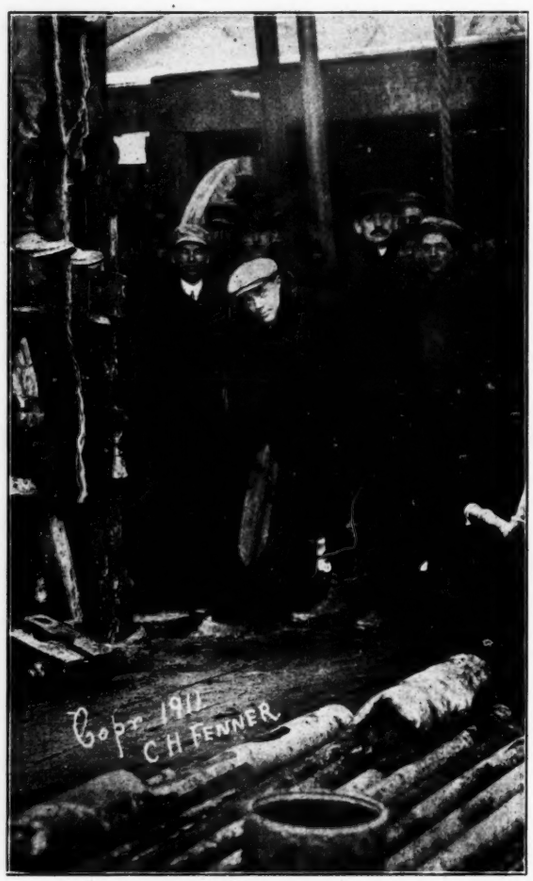
Review for Month of May Shows Increase in All Branches.

The oil producing districts east of the Mississippi river showed a picking up during the month of May with a sufficient increase in new work to reveal a healthier condition than at the first of last month. There was a slight increase in new production, although the number of completed wells was greater than for the month previous. The dry holes were at a standoff, with an increase in new work.

The Illinois Field.

Work is picking up in the Illinois field after a few months of lethargy. Not for many years has such dry and hot weather been experienced at this season of the year in Illinois. Now that work has started right there is no doubt but the summer season will be an active one, especially in the deep sand fields of Lawrence county and the new fields developed in Clinton county. Crawford county has been pretty well drilled over, as has Clarke, Cumberland, and portions of Coles and Edgar counties. An important test is now under way in Hutton township, Coles county, that may lead to the finding of a new pool. This venture is being drilled by unknown parties on the Strom Ingraham farm, near the town of Hutton, and in advance of previous development work. The wildcat well in Symmes township, Edgar county, south of Paris, which is being drilled by H. G. Clemenger and others on the J. Hackman farm, section 35, is being made a deep test, and will in all probability drop into the dry hole column, as no showing of either oil or gas had been encountered at 1,700 feet.

Some very creditable producers were found in the deep sands of Lawrence county during May, but no gushers showed up as in former weeks. Three good strikes were made in Dennison township. The Ohio Oil Company's No. 9 Theodore Leighty farm produced 300 bbls., and No. 13, A. B. Buchanan farm, 250 bbls., while Bruner, Bartlett and others got one good for 210 bbls. in No. 2 S. J. Gee farm. In Petty township, Curtis, Aiken and others struck the plum in the month in a 375-bbl. producer in No. 17 R. L. Fitch farm. The Kewanee Oil and Gas Company drilled a 300-bbl. well in No. 13 C. Stallings farm, and W. C. McBride one good for 150 bbls. in No. 18 William Crump 40 acres, section 30. The best



"BILLY" SUNDAY DROPPING A GO-DEVIL
The Evangelist Assists in Shooting an Oil Well at Lima, Ohio

that the Ohio Oil Company could get in the Petty field was a 100-bbl. in No. 2 F. S. Ketterman farm. The Kewanee Oil and Gas Company drilled in a 1,000,000 cubic foot gas well in No. 12 C. Stallings farm, section 30.

In Bridgeport township, Lawrence county, the Ohio Oil Company drilled a 2,000,000 gas well in No. 10 A. J. Coombs' heirs farm, section 31. The gas was found in the Tracy deep sand. Same company's No. 20 W. C. Miller farm produced 115 bbls.

Clarke county failed to show anything but one duster which was located in Casey township, and drilled by Barnsdall, Hays and others on the Heim farm. Cumberland county, out of two completions, is credited with two dusters, which is not a very favorable report for Union township, where much bil has been produced in the past.

Oblong township, of Crawford county, showed up well during the past 30 days. Brenneman & McDonel drilled in a 130-bbl. producer in No. 14 Frank Coudry farm, section 7. The Crown Oil and Gas Company has the banner wells of the late completions on the James Murphy farm, section 8. No. 6 produced 300 bbls.; No. 7 about 240 bbls., while Nos. 8 and 9 were light producers. The Ohio Oil Company struck a good well in No. 24 on the Darrugh farm, which produced 200 bbls.

An 80-bbl. producer was the best that Robinson township, same county, could get, and that was J. C. Donnell agents No. 11 on the C. C. Reynolds farm. The Bellair field, in Licking township, fared much better. J. W. Salley and others found a 200-bbl. producer in No. 8 Susannah Smith farm, and James M. Fast and others a 156-bbl. producer in No. 14 S. C. Bowman farm.

The Sandoval field, in Marion county, completed eight wells, of which one was dry, the other seven averaging 75 bbls. each. The largest of the producers was a century well drilled by the Southwestern Oil and Gas Company, in No. 6 A. E. Benoist farm, and the smallest was the Gunyon Oil Company's No. 4 Gunyon farm, which produced 50 bbls.

The banner producer of Illinois for the month was struck in the Carlyle field, in Wade township, Clinton county, and was the Surpass Oil and Gas Company's No. 1 on the Schlafley farm, which produced 700 bbls.

During May there were a total of 117 wells completed in the Illinois field, of which 33 were dry holes and gas wells and 9 wells were abandoned. The production of the new completions was 5,132 bbls. This is an increase over the April report of 36 completed wells, and 17 dry holes and gas wells, while in new production there is a decline of 455 bbls., owing to the fact that the deep sand fields of Lawrence county failed to show one or more gushers. The close of May shows 6 rigs and 214 drilling wells, a decrease of 19 in rigs and an increase of 43 in drilling wells, or a net increase of 24 in new work.

The Ohio Field

Development work in the Lima fields of northwestern Ohio for May shows a slight increase in completed work and dry holes, while in new production there is a small decrease. The feature of the month is an increase in new work under way, which means greater activity during June.

The entire completions during May were in defined territory, as no wells were drilled in territory outside the well known producing counties. The most noticeable increase was in Wood county, the old banner producing county of the Trenton rock fields. There was an increase of four completed wells, two dry holes and 40 bbls. in production. The best well in the county was found in the Mermill district, in Portage township, on the Welton farm, and had an initial production of 80 bbls.

Two tests are drilling in Henry township, that will be watched with some interest, as both are outside of the good producing limits. One of the wells is being drilled by Montgomery, Stitt and others on the D. H. Swope farm, section 16, and another by S. V. Carrick and others on the J. D. Fellers farm, section 8. The last named test is on the western edge of the producing area. Thos. L. Norway drilled a test during the month on the J. H. McMahon tract, in section 1, Liberty township, same county, and was rewarded with a 25-bbl. producer.

Charles Went drilled in a light gas well on a town lot, in Findlay township, Hancock county. This well only had a 70-pound rock pressure, showing that the gas is about exhausted, in what was at one time the most wonderful gas field in existence. The wells found over the other producing counties were nothing but light affairs.

During May there were a total of 44 wells completed with 5 dry holes and gas wells and a new production of 460 bbls. This is an increase over the April figures of 4 completed wells and 3 dry holes, while in new production

there was a falling off of 23 bbls.

In new work under way at the close of May there were 17 rigs up and 45 drilling wells, against the April report of 21 rigs up and 38 drilling wells. This is a decrease in rigs up of 3 and 3 more wells drilling, making a net gain of 4 in new work.

Indiana Field.

No change was made in the number of completed wells in the Indiana field for May from the figures for April, but there was a slight decline in the new production, and one less dry hole. The once active Indiana field looks very much as though it was all in, and if something new is not soon found there will be less work. The older sections of the state known as the Trenton rock fields were never as quiet at any time in the past twenty years as at present. Wells county shows no new work. Blackford county has one well drilling and Jay county but one rig up, while Delaware county has one drilling well, which constitutes the work in the eastern section of the state. In southwestern Indiana there are four drilling wells in the Oakland City field, of Knox county; one well drilling in Daviess and two rigs up and building in Greene county, and five drilling wells in Pike county. The new pool opened up a few weeks ago in the western part of Monroe township, Pike county, is not showing wells large enough to encourage active drilling.

During May there were only 8 wells drilled in the state, of which 2 were dusters, the others having a new production of but 66 bbls. This is a decrease in new production of but 7 bbls., and 1 less dry hole than for the April report. The same number of completions were made in May as in April.

In new work under way there were at the close of May 3 rigs up and 14 drilling wells against the April figures of 1 rig up and 16 wells drilling, showing a decline of 2 in drilling wells and an increase of 2 in rigs up, making the month a standoff.

Kentucky-Tennessee.

The May figures of the Kentucky-Tennessee field show an increase in completed work, with no change in the total of new work under way. All the completed work for May was centered in the Wayne county division, while the bulk of the new work is also found in the same county, with some scattered work over the eastern and western section of the state that is not accounted for. The best producer for the month was a 100-bbl. well found by the Wood Oil Company, on the H. T. Hurt farm, in the Mt. Pisgah district of Wayne county. A 20-bbl. producer was also found on the Joseph Hurt farm, in the same field.

In the Cooper district, in the southern section of Wayne county, to the south of Monticello, the New Domain Oil and Gas Company's No. 12 A. T. Barrier farm, started at 25 bbls., but has declined to a 10-bbl. well. The old Steubenville district had two completions, but both were in the stripper class. Drilling wells are reported in Mason, Lawrence, Logan, Hopkins and Muhlenberg counties, but no trace of them could be found.

During May there were 12 wells completed in the Kentucky field, of which 1 was a duster, the balance showing a new production of 176 bbls. This is an increase in completed work over the April figures of 4 completed wells and 9 bbls. in new production, while in dry holes there was 1 less for May.

In new work under way at the close of May there were 4 rigs up and 13 drilling wells against the April report of 6 rigs up and 11 drilling wells, making a decline of 2 in rigs up and an increase of 2 in drilling wells, making a standoff in the totals for the two months.

Pennsylvania-West Virginia.

Operations in the southwest Pennsylvania, West Virginia and southeastern Ohio fields for the month of May showed a decrease in completed work, an increase in production and a decrease in dry holes, as compared with the preceding month.

The southwest Pennsylvania fields completed 11 wells, 12 fewer than in April. Of this number 2 were dry holes and 3 gas wells. The new pro-

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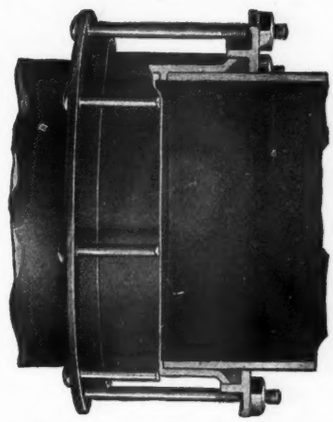

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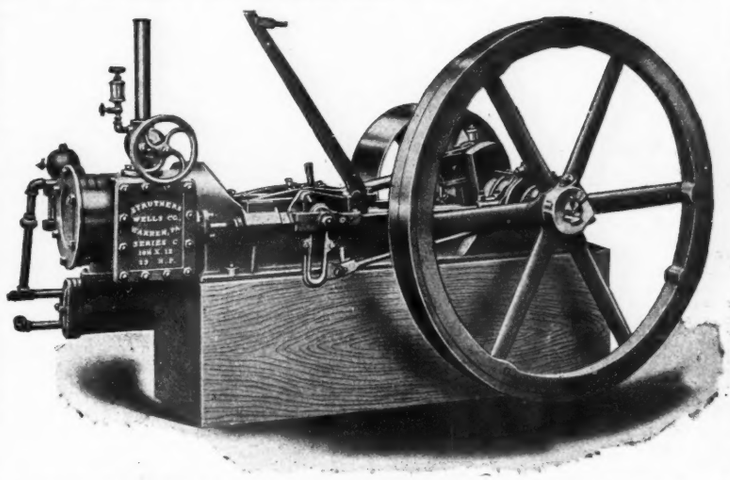

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duction amounted to 75 bbls. or 96 bbls. less than in April. The average of the producing wells for May was 12 1-2 bbls. as against 11 bbls. for the preceding month.

The West Virginia fields completed 96 wells and of this number 10 were total failures and 30 gassers. The new production amounted to 981 bbls., giving the wells listed as producers an average of a little less than 18 bbls. There was very little difference between the May and April averages. The old districts again furnished the greater part of the new production and the month closed without having any new producing territory in sight.

Southeastern Ohio.

The oil producing districts of southeastern Ohio completed 99 wells in May, an increase of 3 over April. Of the total completions 28 were dry holes and 6 gassers, leaving 65 in the producing column. The new production amounted to 1,222 bbls. or 545 bbls. more than in April. The average of the producing wells was a little less than 19 bbls. The average for the preceding month was a little above 11 bbls.

The south and southwest extension to the deep sand territory in Perry and Hocking counties furnished the best producers and increased the size of the average in southeastern Ohio, as compared with the month of April. In the entire southeastern Ohio area, the south and southwest extensions alone are attracting attention and promise to supply much new production. The expected northern extension failed to present anything but dusters and light gas wells.

The three divisions, southwest Pennsylvania—embracing Allegheny, Beaver, Washington and Greene counties—West Virginia and southeastern Ohio, completed 206 wells in May, 13 less than in April. In May the same divisions showed 79 dry holes and gassers and April completed 97. From the three divisions the May record was 2,278 bbls. of new production and for April 1,704 bbls. The average of the wells listed as producers for the month of May was very close to 18 bbls., while for the preceding month the average was 14 1-10 bbls. The increase in the average was entirely due to the good producers completed in the lower end of the deep sand territory in southeastern Ohio.

New Work.

At the close of the month the southwest Pennsylvania fields showed an increase of 3 rigs and 7 drilling wells. The record at the close of April was 10 rigs and 16 drilling wells.

The only district in southwest Pennsylvania attracting any attention is in the vicinity of the Schwartz Bros.' well near Perrysville, Allegheny county. The initial well on the Schwartz farm is holding up close to 100 bbls. a day and has not been shot or drilled through the sand.

The West Virginia field suffered a loss in both rigs and drilling wells as compared with April. At the close of May there were 64 rigs and 107 drilling wells, showing a loss of 3 rigs and 5 drilling wells. Scarcity of water is causing some delay in a few districts. During May scarcity of water proved almost as much of a hindrance as the bad roads in April.

In the southeastern Ohio fields, the close of the month showed 25 rigs, a loss of 11 as compared with April and for the same period 78 drilling wells, a gain of 4 over the close of April, showing a net loss of 7 in new work. The lower extension to the deep sand territory and the activity that prevailed inside of defined limits alone made it possible to prevent a greater loss in new work.

At the close of May the three divisions showed 102 rigs and 208 drilling wells, a total of 310. At the close of April the same three divisions had 113 rigs and 202 drilling wells, a total of 315, which shows a net loss of 5 at the close of May.

It requires but a casual glance over the producing districts in the eastern fields to show that there is nothing at the close of the month to inspire the operator to greater activity. There are but two districts, Roane county in West Virginia, and the deep sand territory in southeastern Ohio, where there is any possible chance for an operator to increase his production. D. S. W.

CALIFORNIA FIELDS

COALINGA, KERN RIVER,
MIDWAY, MARICOPA,
FULLERTON, VENTURA

FALSE REPORTS CIRCULATED.

Demand Not Equal to Supply—Storage Problem Complexing.

LOS ANGELES, May 27.—If one were governed by some of the reports issued by stock companies the impression would prevail that markets are in a most flourishing condition. Here are samples: "The industry in California is now, admittedly, in a more healthy condition than it has been since the discovery of petroleum within its boundaries." "The fear of over-production that followed the big gushers has passed into history." "The law of supply and demand is nearing a balance, with indications of a demand greater than the supply," etc.

Unfortunately these conditions do not exist, and while it is always well to take an optimistic view of the situation, there is no reason for distorting actual facts. At this time there is no prospect whatever of the "demand being equal to the supply." All who are familiar with conditions know that every oil company operating in the northern fields is taxed to the limit in caring for their oil, and orders are being issued to those having contracts to curtail developments. Even the Standard, with its immense storage capacity and hundreds of workmen constructing more reservoirs, cannot keep pace with the floods that are coming in.

The following quotation from a local paper is a fair illustration of the straits to which not only the Patricia but hundreds of others are being subjected:

"The Patricia Oil Company, operating in the Kern River field, has just levied assessment No. 2 of five cents per share. In a letter addressed to the stockholders, the directors explain that this step was made necessary by the closing of the doors of the Kern Valley bank, which was the depository of the company and which holds the company's note for $9,000.

It now seems evident that the Producers Agency is going into the storage business, for it has been figured out that it is its only recourse if it would continue in producing more oil. The matter was not considered advisable by many of its members at first, and in fact some members were flat-footed against the measure when first given serious consideration, no matter what their sentiments are now or how unanimous the vote may have been in adopting the plan.

As has been previously stated the plan is to form a company organized with a capitalization of $5,000,000. Prospectuses outlining the code have been issued to the members, which in effect is as follows:

To issue $4,000,000 of 10-year bonds in denominations of $1,000 and $500, bearing interest at the rate of 8 per cent per annum, payable annually, bonds redeemable after three years at 103 and accrued interest. It provides for the purchase of 4,000,000 bbls. steel storage from the Union Oil Company and the construction of reinforced concrete reservoirs. The idea is for Agency members to sell the storage company 5,000,000 bbls. of its present storage oil at 25 cents a barrel, and accept stock at its par value in payment. Bonds are to be a first lien on reservoirs and oil in same based on a rate of 12½ cents a barrel; 25 cents a barrel for steel tanks and oil in same.

The importance of the plan is thus outlined in the circular sent out by the executive committee:

"In the judgment of your executive committee, this proposition is of more vital importance to the members of the Agency than any question presented during its history. If this storage plan is carried into effect you will at once be in a position to operate your properties continuously. Most of the present storage oil will then be removed from participation in sales, and the sales will be prorated over the production each month, consequently the question of prorating is correctly and permanently solved, for you will get pay for that percentage of your monthly production which is sold, the remainder being turned over to the storage company for its value on the same basis that all oil goes into storage.

"We now have good assurance that a large part of the bonds necessary to carry this enterprise through will be subscribed for, but in order to get immediate results it is absolutely necessary for every producer to do his part. Your committee believes that after this storage corporation is in successful operation we will be able to find outside market for these bonds, and any additional amount that may be necessary to provide future storage, but until we have demonstrated the feasibility of the plan and have paid interest a few months on the bonds that we now propose to issue it will be necessary for the producers themselves to carry the load."

The Whittier Field.

Outside the activities being shown by the Central Oil Company very little change has come about in the Whittier field for several weeks. The Central, however, has much new work mapped out and several locations are now being graded. Some of the new work is going on in test locations, as the company intends to prospect its large holdings from line to line. They have eight strings working and will start a new string next week. Nos. 7 and 34 are each about 1,900 feet and are expected in inside of a few days. They will both make large producers of high gravity oil. No. 12, recently brought in, has been re-perforated, and the production has been largely increased, doing better than 50 bbls. a day.

This company is drilling with electricity, which is giving the best of satisfaction, superintendent and drillers all expressing the opinion that this mode of drilling is surely destined to become operative in every field in the future. Its speed regulation is under the same perfect control in drilling as are the street cars in our cities under the care of motormen. It is ready for business at any moment, and as one driller expressed it, "has fuel and steam skinned in a hundred ways."

Interest still centers farther down the valley, and until everything in sight has been leased in La Habra valley, Whittier will not be much in evidence.

FULLERTON FIELD PROMISING.

Leasing is Active—Good Country to Work In—Prospects of Refinery.

LOS ANGELES, May 25.—Possibly no part of the oil fields of this state is receiving more attention at this time than the territory classed as the Fullerton field along the line of Los Angeles and Orange counties. Recent developments have brought into favor a large amount of territory in the La Habra valley and in consequence every foot of land is being leased for miles all along the valley. The largest portion of the oil being produced is of high gravity, and with the prospects of a $3,000,000 refinery to be built by the Standard Oil Company at Manhattan Beach, markets are assured; in fact, there is already considerable rivalry for the product that is now being marketed, which gives encouragement to development to those who are becoming interested in this section.

S. C. Graham, who is one of the best posted oil men in the state, with his partner, "Billie" Loftus (both former Pennsylvania boys), has the most promising tract of land in the entire district. It consists of 1,290 acres, and is valued at a round $2,000,000 with no improvements whatever. These gentlemen have been very successful in operations, and purchased this land during their success some years ago at $78 per acre, feeling satisfied that it would eventually become very valuable. That they were wise in their reasoning has been verified, for they are constantly besieged with offers for their holdings. Rumors that they have sold the land are denied by these gentlemen, who state that they are in no ways anxious to sell and as soon as they have perfected all arrangements with the recent sale of their producing property they will start operations on this tract.

Much of the land in this region has been leased for years, but here and there are found ranches, most of them highly improved and some are valued as high as $2,000 an acre as fruit lands. These are being eagerly sought. Among those who are becoming interested is the Standard Oil Company, which company is said to have acquired much territory during the last few weeks, with a view to starting immediate developments.

The coming of the Standard to the southern fields is the forerunner of great expectations and anticipations are bright with future promise. The building of this refinery means the employment of thousands of men, not only at the works, but in the erection of buildings and roads, the extending of railroad lines, building of storage tanks and all the minor work incidental to an enterprise of this magnitude.

There are many features connected with developments in the Fullerton district quite contrary to those found in the San Joaquin valley. It is generally conceded by most operators, especially those who are interested in quick results, that it is too deep. And yet these same people have been known to drill much deeper in territory where every disadvantage had to be encountered; where water cost from 7 to 12 cents a barrel, and fuel had to be conveyed a long distance and at great expense. And even when oil was found there were no transportation facilities, nor markets either, for that matter. Then again, think of living in an atmosphere several months in the year over 110° F. in the shade. These are some of the endurances met with in the Midway and other fields in the north.

In the Fullerton field all these drawbacks have been overcome; artesian water is available on every lease; fuel can be had at market prices and transportation facilities could not be better. Temperature is more equal, the thermometer seldom going above 90°, and working conditions are most congenial all the year round. Besides this there are no combines and operators are independent. So far in the history of development there has never been any dissatisfaction in market prices and storage propositions have cut no figure in the oilman's troubles.

The 500 feet of 10-inch casing dropped 500 feet in the well of the Midway Provident Oil Company at Santa Paula has been recovered with a loss of but two joints. Drilling has been resumed and work is progressing satisfactory. Although oil and gas is being encountered, it is the intention to make a deep test well.

The Associated Oil Company, in its deep-test well in 26-30-33, Elk Hills, has reached a depth of 3,500 feet and is now using 4½-inch casing. There is little evidence of oil so far, but a thorough test will be made. Much depends on the outcome.

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WYOMING OIL LANDS—6,000 acres of land offered for oil development. Discovery of sodium carbonate on every quarter section, which validates locations under latest ruling of the department. Near commercial pipe line and refinery just started to be constructed. Wyoming is the coming oil state and this land would make a fine nucleus for an oil company with which to commence business. Address, E. Richard Shipp, Casper, Wyoming.

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OFFICE MAN—Position by experienced executive office man, familiar with oil and gas business. References given. Address Secretary, care The Journal.

FIELD MANAGER—A man who knows how to manage an oil field or company is loking for an opportunity with a new company, where the compensation will consist of small salary and an interest in the concern, or half cash salary and one-half in stock. Would not object to going abroad, and have had years of experience in Spanish-speaking countries. Best of references. Address, M. U. L., care of Oil & Gas Journal, Drawer 22, St. Louis, Mo.

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GOOD PROPERTY IN DEMAND.—Have a customer for a good producing oil property. What have you in sight? We have a party that wants a good producing property; have plenty of money and will send a man to investigate anything that looks good. Address A. M. Co., care Oil and Gas Journal.

SHALLOW SAND—Production in the shallow sand field of Oklahoma. Address with particulars, Box 487, Nowata, Okla.

MID-CONTINENT — Production and acreage in the Mid-Continent field. Give locations and full particulars. Address Box 946, Robinson, Ill.

INFORMATION WANTED

concerning Michael Cannon, also known as "Mickey" Cannon and "Pipe Line Shorty," 43 years of age, born in County Galway, Ireland, and been doing oil and gas pipe line work about 27 years all over the United States. Last heard of at Tulsa, Okla., in fall of 1908. For specific information furnished $50 will be paid by his brother, T. J. CANNON, 1623 South J street, Tacoma, Wash., or to his sister, Mrs. Mary Early, same address.

The California Amalgamated Oil Company is the name of an English corporation which has recently taken over the properties of the January and July oil companies in the Midway field.

NOTES FROM WYOMING.

The Evanston Press of May 20 has the following to say in regard to the Spring Valley field: "Mr. J. C. Howard, manager of the Utah Refining Company, was in the field last week making arrangements for the drilling of a well on the southwest quarter of section 14, recently leased from L. E. Nebergall. A rig is being put up and drilling will be started within a week.

"L. E. Nebergall was in Evanston Tuesday and Wednesday looking after his interests. He states that work is to be started at once on two wells in section 27 for the Home Oil Company, for which he holds the contract.

"New companies and individual operators are still coming in and everything points to a busy time in Spring Valley this year. The Benjo Syndicate, composed of Chicago and Wisconsin parties, whose representatives were in the field last March, have taken several leases, among them being a lease on 40 acres in section 14, adjoining the property of the Texas-King company. Work will begin on this lease at once.

"Well No. 1 on the property of the Texas-King Oil and Gas Company at Spring Valley was shot Thursday, May 11, with 40 quarts. It has been cleaned out and put to pumping. It is said that it made 60 bbls. the first ten hours after the shot. After the first pumping it was pulled and cleaned again and put back on the power, the latest report giving it a production of two and a half barrels an hour, at the same time producing enough gas to operate the boilers. The well was completed October 26, 1910, and has been pumping at intervals since. Through G. B. Edwards, local representative of the National Supply Company, an order was placed for a No. 4 national drilling machine and will be put to work on arrival. The management of the Texas-King company, which also controls the Roberts Oil Company, states that it will drill four wells on the Texas-King property and five on the Roberts."

MOTOR BOATS IN CHINA.

Consul General Amos P. Wilder, of Shanghai, writes as follows in the Daily Consular and Trade Reports:

The Asiatic Petroleum Company is taking the lead in the installation of large, shallow-draft freight motor vessels on the Yangtze and other Chinese waters. The local press gives the following account of a trial trip of the company's new twin-screw motor boat:

"A new kerosene motor vessel, Kai Hwen, with a capacity of about 200 tons, and the only boat of this size and type in the Far East, was recently taken for a successful trip on the Huangpu. Between 30 and 40 shipping men and marine engineers made the trip, which consisted of a run up the river nearly as far as Minghong, with four runs over the measured nautical mile. A great deal of interest was evinced in the craft, and it is confidently expected that it will prove to be the pioneer of this type of vessel, capable of carrying considerable cargo, on the Yangtze. The Kai Hwen will be run entirely by a Chinese crew after the first few weeks.

"The Kai Hwen was designed in England and was built by the Kiangnan Dock and Engineering Works. The machinery consists of two sets of 6-cylinder Gardner engines, kerosene driven, developing 220 brake horsepower and a speed of 8½ knots. The draft with a half cargo is 2 feet 2 inches; with a full cargo, 3 feet; and the dimensions are 150 feet over all, molded breadth 27 feet, molded depth 6 feet 9 inches. The Kai Hwen, which has excellent accommodation for four European passengers, will be engaged on the Kuikiang and Poyang Lake trade."

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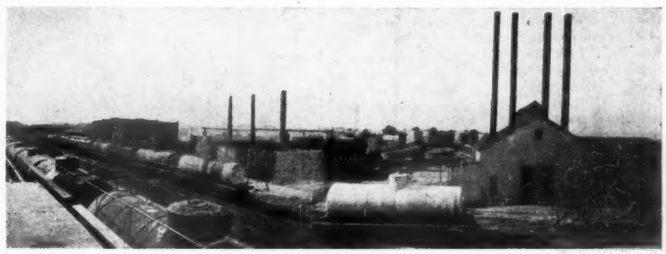

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GAS—LIGHT, FUEL AND POWER

PITTSBURG STOCK MARKET.

PITTSBURG, Pa., June 1.—(Special)—The past week on the local exchange has been very quiet in natural gas and oil securities, less than 1,200 shares being handled. Ohio Fuel Supply registered only two sales, amounting to 95 shares at 42¾. It closed 42 bid and offered at 43. Ohio Fuel Supply debs. sold to the extent of $9,262.50 at an advance of ¼, all sales being at 98¼, closed at 98¼ bid and offered at par.

Ohio Fuel Oil holds its first annual meeting next month. A new well in Clay County, W. Va., makes a large block of territory owned by this company look good. Incidently, this is the first producing well in Clay county. Three hundred and sixty-five shares were traded in, all at 6¾. Closed 6½ bid and offered at 6¾.

Manufacturers Light and Heat remains around 20 to 20⅛, with only 275 shares on the market. No report as yet from financial committee as to refinancing the company. Closed 20 bid, 20¼ asked.

Union Natural Gas without a sale. closed with 138 bid, offered at 140. Pure Oil common is being traded in at 7⅜ to 7¾, 360 shares traded in. No new rumors of deals or dividend has a tendency to restrict the trading. Oklahoma Natural Gas a shade weaker, 40 shares selling at 57½ to 57¾, and closed 57 bid, offered at 57½. Wichita is still on the fence, and registered no sales. It is nominally 39 bid, offered at 41. Dominion Natural Gas completed a new well of 4,000,000 cubic feet capacity on a large block of new territory, but good news failed to arouse any interest in the stock, nominally 112 bid. Arkansas Natural Gas attracted a little attention, rumored small sales of stock at 15 to 17, and offered lightly at 20. The 1913 bonds of this company can be secured at attractive prices. Lone Star stock can be secured around 77 and bonds at 93 to 95.

Kansas Natural Gas is inactive, nominally 21 to 22. The second bonds 82 bid. Union 6s, 103 bid. Manufactures Light and Heat, 100½ bid.

CENTRAL OHIO GAS FIELD.

Increase in Completed Wells—New Work at About a Standoff.

NEWARK, O., June 1.—(Special.)—Central Ohio shows quite a respectable increase in completed work for May over the April figures. Nothing in the way of oil producers was found during the month, but some very fine gas producers were drilled in, especially in the Ashland county field, the present center of interest in the gas territory. None of the large gas concerns with the exception of the Central Contract and Finance Company and the Heisey and Everett Gas Company have started active work as yet. The Columbus Gas and Fuel Company, the Logan Natural Gas and Fuel Company, the Ohio Fuel Supply Company and the Columbus Natural Gas Company have started work as brisk as usual, but have staked out a number of new locations to drill and will soon commence active development work to increase their supply for the coming winter season.

The Ohio-Rochester Oil and Gas Company, which holds a large body of land in central Ohio, has not started active work as yet, and it is hardly known when it will start the drill. The finding of a good gas well by the Medina Oil, Gas and Mining Company in a test on the Wight farm, in Congress township, Wayne county, and south of Medina field, makes the holders of leases in that vicinity look pleasant. The drilling in of another duster by the Columbus Gas and Fuel Company on the J. W. Phillips farm, in Washington township, Coshocton county and southeast a few miles from the oil producing well on the Mrs. Isaac Norris farm, makes the territory to the east look rather discouraging, as dusters cost a mint of money in the deep sand districts.

In Medina county, the Logan Natural Gas and Fuel Company drilled in a 2,500,000-cubic foot gas well on the Thompson farm, in York township, and a duster on the Millie Rice farm, in Litchfield township. Underwood and others are at work on a test of more than minor importance on the Seibert farm, in Medina township. In Bedford township, Coshocton county, the Columbus Gas and Fuel Company drilled in a 1,000,000-cubic foot gas well on the H. B. S. Miller farm.

The real gas gushers of the month were found in Ashland county. The well on the Shanks Bros.' farm, owned by the Logan Natural Gas and Fuel Company, in Montgomery township, produced 8,000,000 cubic feet and No. 1 Scott farm, same township, just half that amount. In Vermillion township, same county, the same company has a 3,000,000-cubic foot well on the Scheller farm, and the Heisey Gas Company one good for 4,000,000 feet on the William Scheller farm. In Miflin township, same county, the Medina Oil, Gas and Mining Company drilled in a 6,000,000-cubic foot well on the Ohl farm.

The Columbus company is doing some wildcat work around Crooksville and Somerset, in Perry county. In the Gibsonville field, in Laurel township, Hocking county, the Central Contract and Finance Company got a 4,000,000-foot well on the Conkle farm, and has started another. It also found a duster on the Seesholtz farm, same township.

During May there were a total of 30 wells completed in the central Ohio field. Ten of these were dusters, while 20 were gas wells, with a combined gas production daily of 44,950,000 cubic feet. This is an increase over the April report of 13 completed wells, 9 gas wells and 4 dry holes. There is an increase of 3 in rigs up and a decrease of 1 in drilling wells, making a net increase of 2 in new work.

GAS LEASING ACTIVE.

Territory Much in Demand—Cuyahoga County Will Be Tested.

NORWALK, O., May 31.—(Special)—In the central Ohio field the late gas wells are not as prolific as were those drilled during the first three months of the present year. Many of the completions were test wells and could hardly be excepted to be as large producers as those drilled in the defined territory. Ashland county develops the best gassers and it will be in that county that most of the large companies will do their active work. Some development work will soon start in Cuyahoga county, in which Cleveland is located and should gas be found there in paying quantities it will relieve the heavy strain of the companies now furnishing that city with fuel and light. Leasing has also been done in the eastern part of Lorain county, west of Cuyahoga and north from Medina county. Holmes, Starke and Summitt counties are also being looked after by the leasers for the large companies, but only for gas and not oil. The bulk of the leasing in Cuyahoga county has been done in the southwestern portion near Berea, Strongsville and North Royalton, as well as Rockport, Alexanders, Thornburg, Lindale, South Park and Beebetown. The Medina county development is in the western section of the county, near Litchfield and close to the Lorain county line and there is hope of extending the field to the north into Lorain county and to the northeast toward Cuyahoga county. During the past few days a test was drilled on the Wight farm, in Congress township, Wayne county, to the south of Medina county, and while the well only shows for 750,000 cubic feet, it proves conclusively that there is a good chance to strike something more prolific with a little more test work. Holmes county is located directly south of Wayne and much leasing has been done around Lakeville, Londonville and Spellacy, in the western and northwestern section of the county, directly north from Coshocton county, northeast of Knox county, east from the southern part of Ashland county, and right in line of what is supposed to be the central Ohio gas belt. Work is not going southward as was expected, but to the north toward Lake Erie instead. The Columbus Gas and Fuel Company has leased up about 40,000 acres in Ashland, Wayne and Holmes counties to the north and will soon start three strings of drilling tools at work. None of the large gas concerns outside of the Central Contract and Finance Company and the Heisey Gas Company have started their active season's development work, but when the other companies do start there will be a heavy gain in new work as well as completed work. A. M.

GASOLINE PRODUCERS MEET.

Organization Was Formed and Shipping Problems Discussed.

PITTSBURG, Pa., May 26.—(Special)—At a meeting held at Pittsburg today at the Fort Pitt hotel a temporary organization of gasoline producers and shippers was formed and the following officers elected: Samuel Messer, of Sistersville, W. Va., president; E. B. Rich, of Parkersburg, W. Va., secretary and treasurer. The following vice presidents for the different districts were appointed: C. L. Kerr, Parkersbury, W. Va.; A. W. Richards, Warren, Pa.; G. L. Watson, Parkersburg, W. Va., and D. W. Franchot, of Tulsa, Okla.

The object of the meeting was to discuss the discrimination being made by railroads against the handling of gasoline made from natural gas. There were about 100 producers and shippers present, and the subject of transporting the product was considered at length. Colonel B. W. Dunn, Chief of the Bureau of Explosives, of Washington, D. C., spoke in regard to the danger of the shipment of high gravity gasoline and in the course of his remarks made mention of the explosion of a tank of natural gas gasoline at the works of the Bell Oil Company at St. Louis some time ago. He intimated to the producers and shippers that it was up to them to formulate a plan by which the danger could be eliminated, or at least be reduced to a minimum in comparison wih the transportation of the refinery product.

He was followed by Frank P. Peterson, the expert for the Bessemer Gas Engine Company, who has made a thorough study of the manufacture of gasoline from gas, and he stated that the natural product could be handled with the same degree of safety as the refinery product if it was properly blended. A general discussion of the subject followed. Colonel Dunn expressed himself as in sympathy with the organization and said he would do all in his power to give it the relief requested. A resolution was presented by the committee on transportation which was adopted requesting the Bureau of Mines of the United States to take up the study of the production, transportation and use of the new fuel and that as soon as possible researches be made and results published.

Another meeting of the association has been called for June 9, to be held at the Fort Pitt hotel, Pittsburg, at which time a permanent organization will be formed, to which all producers and shippers of natural gasoline will be eligible. A committee was appointed to confer with Colonel Dunn on the subject of transportation of natural gasoline and to go before the Interstate Commerce Commission at its next meeting to be held in Washington, D. C., May 31.

GAS MEN PROTEST.

At a hearing before a committee of the legislature at Columbus, O., last week, gas men were in evidence with their protests against the Winters public utilities bill, which will have a bearing on their interests if passed. The bill contains a compulsory clause which is not at all to the liking of the gas interests, and places the supervision of the companies in the power of a commission which will determine reasonable rates and will look to their enforcement. Most of the companies were in favor of having the supervision left to the city councils, as is the case with street railways, and were opposed to any commission form of jurisdiction. Probably the most important city to be effected by any rulings of the commission would be Columbus, where a gas war has been waged for the past few months. The Columbus Gas and Fuel Company refused to accept an ordinance passed by the council in which the price of gas was made 30 cents per thousand feet for 10 years, and the company gave notice that it would refuse to supply its customers after July 1. At the hearing before the legislature the attorney for the Columbus Gas and Fuel Company emphatically stated that it was no bluff about shutting off the gas, and unless the council saw fit to meet the company half way, consumers would have to look some other place for their supply. All of the large gas companies were represented and their protests against the provisions of the bill came thick and fast. While the utilities bill may be of some good to the cities, it is being fought by the gas companies, as they are not willing to stake their investments on a proposition where the returns are uncertain. While all public utilities in the state would be subject to the rulings of the commission, the gas problem is the most interesting, owing to the decrease in the supply, and the provisions contained in the bill.

TO SUPPLY NATURAL GAS.

Pittsburg capitalists are preparing to give Rochester, N. Y., natural gas, and have, recently been looking over the situation in the city. Among them was former Mayor William Hayes, of Pittsburg, Pa. It will take $4,000,000 to extend the line from Pavilion to Rochester, and the company contemplating putting in the gas says that it has $5,000,000 more to expend. Frank E. Barnard has been deeply interested in the proposition of piping Rochester for gas for some time and has been calling at the city frequently. The Pittsburg visitors aside from Mayor Hayes were Walter Hansel, Charles E. Succup, George J. Schmidt, John A. Beck, John H. Friday and J. S. L. Purdy, general manager of the Pavilion Natural Gas Company. General manager Purdy said that about two years ago they had a representative at Rochester to investigate the possibilities of entering the city with gas. He reported unfavorably. Then towns near Pavilion were piped and plans made for extending the line into the city. Mr. Barnard said that 40 cents per 1,000 feet would be the maximum price in Rochester. He also said that he did not know when the application would be made to the councils for a franchise but added that it would be soon.

A FIGHT ENSUED.

When the St. Joseph Gas Company, of St. Joseph, Mo., posted notice that the gas rate would be increased from 35 cents per thousand feet to 45 cents per thousand feet, it stirred up a little trouble with the public utilities commission. At a meeting of the commission to look into the advanced rate the secretary was instructed to obtain schedules of rates obtaining in other cities supplied by the Kansas Natural Gas Company. K. M. Mitchell, general manager of the gas company presented his company's contract with the Kansas Natural Gas Company, showing that the supplying company required the increase in price to be made. He held that the local company had done nothing to forfeit its franchise.

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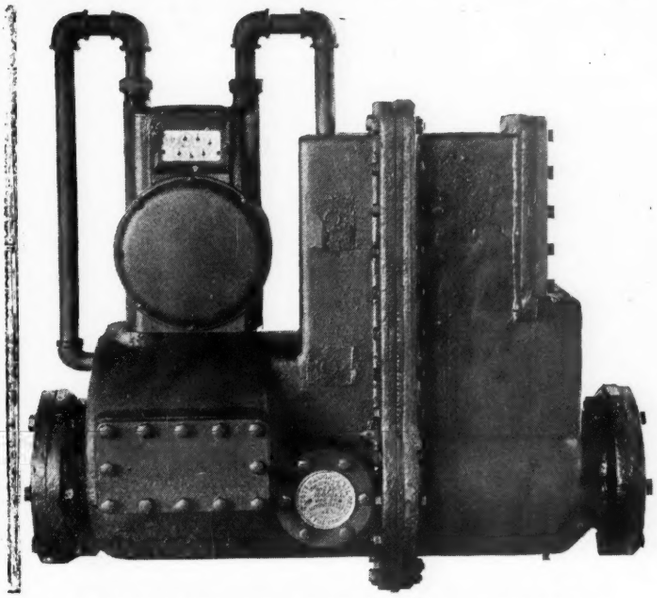

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City Counselor Norris insisted that when the St. Joseph Gas Company began to supply natural gas it forfeited all its rights under the artificial franchise. E. H. Spratt, president of the commission, declared it his opinion that the local company had forfeited its franchise.

A BOOST FOR ATLANTA.

The following letter from R. C. Congdon, manager of the Atlanta Gas Light Company, ought to get the business:

Dear Sir:—The Atlanta Gas Light Company extends a cordial invitation to the National Commercial Gas Association to hold its 1912 convention in "Dixie," and in the city of Atlanta.

We are all members of the association so that I can say "Our Association" has not yet favored this Southland with a visit. Our meetings have been held in the east, north, and west, and as the association is national in character, and as the south is a great and growing country, we feel that the association next year should meet with us in Atlanta where we have a magnificent auditorium and ample hotel accommodations.

Our auditorium will seat six thousand people and in addition to the large arena, similar to that of the Madison Square Garden, and where the gas show can be held, there is a large convention room which can easily accommodate our association, and in which the acoustic properties are unexcelled.

We believe many of our members will be interested to come south, as many have never seen this section of their native land. We want the southern gas men to catch the spirit of progress so plainly evident in our association, and we want also to show the members what is being done in the south for the general advancement of our industry.

Our company has subscribed $5,000 to help defray the expenses of the convention, and the city and many commercial bodies have been notified of our desire to bring the convention here, and we can rely upon their assistance, financially as well as in hearty co-operation otherwise.

Trusting you will carefully consider the advantages of Atlanta as a place for holding our next meeting, and hoping that you will give us the assurance of your co-operation, I am,

Very respectfully yours,
R. C. CONGDON,
Manager.

ANOTHER GAS INVESTIGATION.

The Buffalo Gas Company, of Buffalo, N. Y., is undergoing the scrutiny of the city fathers in the matter of prices charged for the product, and an investigation has been under way for some time. The committee is looking for definite information in regard to the formation of the company, the source of supply, the money invested, the distance the gas has to be piped and is not overlooking any detail to make the investigation complete. At a recent hearing before the public service commission Alfred E. Forstall, a gas expert of New York City, was on the stand and explained that he made a special investigation of the gas situation in 1906. He said that Buffalo's supply of natural gas comes from Elk and McKean counties, Pennsylvania, and that the line also had been extended to the southern Pennsylvania fields. When asked how far natural gas could be profitably piped, he answered that Cleveland, O., was getting its supply from West Virginia. He was asked if he had any practical experience in laying pipe lines and he replied that he had. When asked what was the difference in laying gas and water lines he replied that the water pipes had to be laid deeper but the gas pipes had to be more tightly joined and cost a little more. He said it was the custom in Buffalo to lay all pipe with lead joints rather than cement. The cost of iron pipe fluctuated he said and cost from $33 a ton down to $18 a ton. Asked about how long it would take to construct 418 miles of mains and pipes in Buffalo he said that it could be done in less than two years and would cost $1,846,584. The main point to be brought out by the investigation was that the consumer eventually paid for the construction of the lines but Mr. Forstall was a little mum on that point. Little interest is being taken in the investigation aside from those directly involved. The investigation will be resumed June 5.

GAS NOTES

J. W. Martin, who is seeking a franchise to furnish natural gas in Detroit, Mich., for 65 cents per 1,000 cubic feet, at a hearing before the council committee on franchises declined to give the names of his backers to the committee. The committee took the matter under advisement and the city attorney will be asked to make a careful examination of the draft of the ordinance granting the franchise, which has been given to the committee by Martin, and to make two amendments to it as well as such others as he may think necessary. One of the amendments is that the company shall put up a large bond which shall be forfeited to the city in case it sells out to the Detroit City Gas Company. The other is to the effect that the city shall have the right to acquire the property at cost, less depreciation, at the expiration of the franchise.

The Peoples Natural Gas Company, a concern operating in the Fayette, Ala. field, has fallen in disfavor with some stockholders at Columbus, Miss., so a press report states. Local capital subscribed $50,000 to secure a pipe line to the city, and it is now claimed that the company wants to raise $30,000 additional capital to carry out the project. The company claims this amount will be required to buy the pipe and asserts that if it is forthcoming a bond will be given guaranteeing the construction of the pipe line. It is said that the propositon is not viewed with favor by the Columbus stockholders.

The Kansas Natural Gas Company which supplies several cities in Kansas and Missouri with natural gas, filed records of a mortgage for $2,000,000 last week in Kansas counties in which its mains run. The mortgage covers the value of property acquired since the bonding of the company for $4,000,000 in 1904. The mortgage is made to the Fidelity Title and Trust Company, of Pittsburg, Pa.

Official Proceedings Natural Gas Association

Continued from May 25th Issue

TUESDAY, MAY 16, 1911.
Afternoon Session.

The association met at 2 p. m., Tuesday, May 16, 1911, pursuant to recess.

President Garard: Gentlemen, we will proceed with our regular program. The first paper of the afternoon will be on the subject, "Operation of Natural Gas Compressing Stations," by Mr. James S. Posgate, Independence, Kas.

The following paper was then read:

OPERATION OF NATURAL GAS COMPRESSING STATIONS.

James S. Posgate.

In preparing this paper on the operation of natural gas compressing stations I was a little dubious of the best way to treat the subject. I might have given you lengthy descriptions of the machinery and arrangements of several stations, discussing at some length particular and peculiar problems entering into the successful operation of each. Again, I might have told you much about the design of the different types of gas engines and compressors in use at the different stations, and the result of considerable fascinating work with the indicator in conjunction with them, and easy would it have been to have exceeded the length of this paper on any one of these subjects. Finally, however, I came to the conclusion that a paper on the broad general lines of "efficiency" would be of the most interest and value to the members of the association.

Although the operation of natural gas compressing stations has characteristics peculiar to itself, in general principles it is similar to the operation of most other power plants, the fundamental function being first to produce power reliably and efficiently and secondly at the least possible cost.

Whether the power is being used to propel a ship, to pump gas to a distant city, or deliver kilowatts to a switchboard, the writer in his several experiences with the three always observed reliability and economy to be the foundation of success in each case. The original design and layout of the station is a most important element in the attainment of reliable and economical power, and it is the writer's good fortune to be associated with compressing stations of a very high standard in this respect, equipped almost exclusively with internal combustion engines of well-known makes.

A brief description of the Kansas Natural Gas Company's compressing station at Grabham, seven miles south of Independence, Kan., will at this point be opportune and, as this is the latest and one of the company's largest plants, the organization and system of operation will be detailed fully.

This plant consists of a fireproof main engine room containing nine twin tandem, double acting, gas engines, direct connected to gas compressors; six of the units are of 1100 b. h. p. and three of 1350 b. h. p. The floor of this building is of reinforced concrete, the basement underneath affording ample head room as well as space for the necessary water, air, exhaust and low pressure gas mains, also room for the pumps and tanks in connection with the very important gravity lubricating oil system with which the plant is equipped. Care has been taken in this as in all the company's plants to so arrange the compressing machinery that the gas intake and discharge lines have minimum lengths inside the buildings, with a view to lessening the chances of a blow-up flooding the engine room with gas. To avoid danger from sparks, a low tension lighting system is used, and the lights are located as far as possible so that they are not liable to breakage; the insulation of all wires, especially those in connection with the igniters, is kept as perfect as possible.

The engines are equipped with separate gasometers and meters located in independent fireproof buildings provided for the purpose. A 20-ton traveling crane available for use on any part of the nine engines completes the main building equipment.

The auxiliary engine room situated in a fireproof building some 50 feet south of the main building contains three 120 h. p. engines driving 75 kw. d. c. generators, which furnish power for motor driven centrifugal pumps supplying the engine cooling water, various motors for machine and blacksmith shops, oil system pumps, lights in and around buildings and so forth. In this same building is also a small well equipped machine shop and storeroom.

A pumping station some five miles distant pumps water from the Verdigris river into a reservoir of 6000 square yards and 5 feet in depth which adjoins the station. An important element in the design of a compressing station is the facility with which their capacity can be increased. The plant we are considering has been added to twice since originally built and is now three times its former size.

Having as in this case a well arranged plant equipped with high class machinery, the problem remains to operate it in such a manner that the power is obtained as reliably as possible, and at a cost as low as possible, the plant and equipment at the same time being kept in such order that the mechanical efficiency is a maximum.

The personnel of the organization at Grabham during busy months is as follows:

One superintendent, with day shift: Main building, 1 first engineer, 1 second engineer, 9 oilers, 1 oil system tender; Auxiliary building, 1 auxiliary engineer. Night shift, Main building, 1 first engineer, 1 second engineer, 9 oilers, 1 oil system tender; Auxiliary building, 1 auxiliary engineer, 1 auxiliary oiler. 1 engineer at river pump station, 1 man cleaning rags and waste, 3 to 6 men in the machine shop of various grades, 1 blacksmith, 1 pipe fitter, 1 electrician, 1 storekeeper, 1 storekeeper's helper, 1 general laborer, 6 to 8 men of various grades on general engine repairs. A total of 45 to 50 men all told.

Considerable work is done at this station for the smaller compressing plants and the field department, not chargeable to Grabham and for which it receives credit.

The Kansas Natural Gas Company's compressing stations are in direct communication by 'phone and private telegraph wire with the head office and it is from this point under the control of the chief engineer that all orders regarding pressures and distribution of the gas are issued. Orders when received at the stations to stop or start engines, raise or lower pressures, etc., are at once written in a book and executed. Regular hourly readings are sent in from all the stations every hour and entered on a suitable record sheet in the main office, so that the pressure conditions over the whole system can be noted and adjustments made to suit conditions. The head operator at the main office looking after the pressures is in constant communication with all the stations and should they want to work on one of the engines he advises them as to whether conditions are favorable or not, and takes into consideration the demand there will probably be for gas and the conditions generally over the system.

Should some work be required to be done on one or more of the units at one of the stations and permission be given, the superintendent instructs the head of the repair gang and he and his men start at once. In cold weather with the demand for gas excessively heavy, work of this nature in a plant such as we are considering is usually conspicuous by its absence, the efforts of everyone being directed to prevent its occurrence. At the same time every opportunity is taken of fair weather to keep the apparatus in the best possible order with a view of insuring its reliability and the saving of more costly repairs. All such repairs, and indeed any work done on the plant or buildings are reported on a proper form and sent into the main office weekly where they are checked up and filed for reference.

Advantage is taken during the summer months to open up and examine all power and compressor cylinders, packing rings being replaced where necessary, and everything done to put the engines into shape for carrying their maximum load, the engines in the three larger power stations being so proportioned to the compressors that this continually has to be done. A large part of the summer overhaul consists in removing scale from the water spaces on the engines, the water in use for cooling purposes being exceedingly high in carbonate of lime. The policy of the company with respect to repairs is to endeavor to keep the machinery all the time as near 100% efficiency as possible, the work of overhaul during the summer season being of a nature as not to readily permit of its being done at other times.

Considering the Kansas Natural Gas Company has power plants aggregating 30,000 b. h. p., comparatively little in the way of spare parts and renewals are bought from the different engine makers, the greater part being made at the machine shops in connection with the Grabham, Petrolia and Scipio plants.

An efficient warehouse system is directed from the main office in connection with all the plants,—the whole system for that matter,—and supplies and material as used are charged up to the correct job number by the local storekeeper at the plant and from him come to the warehouse department at the main office where the different charges

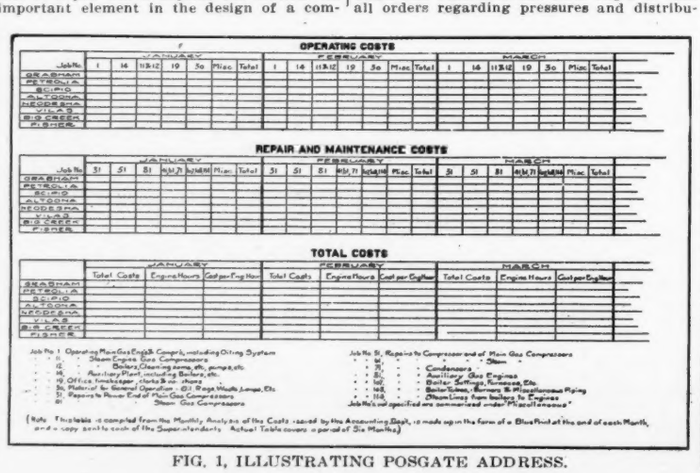

FIG. 1, ILLUSTRATING POSGATE ADDRESS.

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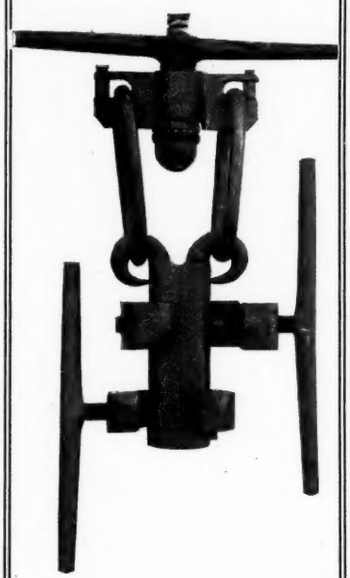

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are put into suitable form for the accounting department, and finally form part of the cost sheet made out at the end of each month. Work done for any of the small stations at the machine shops above referred to is all done on shop orders issued from the main office, the plant for which the work is done being charged with its exact cost.

Stock records are kept in the main office so that it is always known what is on hand at all the warehouses. In order that economical results may be attained a certain amount of red tape becomes necessary, and in spite of the contempt too often expressed for it by practical engineers, the writer is a great believer in red tape just so long as too big an index is not required for its interpretation. It is absolutely necessary to know what expenses are being incurred, and it requires strict adherence to a good system to make this attainable.

The engineering department receives from the accounting department every month an analysis of the expenses incurred at each station, which analysis is carefully criticised, and after being tabulated in full is condensed into a form, Fig. 1. This form is a factor in obtaining the desired results, every month it being made up to date, and a copy of it sent to each of the superintendents, enabling him to see how his plant compares with previous months and with plants operating under fairly similar conditions. Given an intelligent set of superintendents, it is the writer's opinion, borne out by experence, that nothing tends more to efficiency in the class of work we are considering, or any class of work for that matter, than making them feel that they are a real active important part of the company's business, that they are expected to get results, and that successful ones will be appreciated. To plod along in the dark in company with more or less adverse criticism is both discouraging and unjust, and never can bring the results of the system of which Fig 1 is the key.

In natural gas compression station work one is confronted with a difficulty peculiar to itself, that is the establishing of a unit of work to take the place of the k. w. hour used in electric generating stations as a unit of cost. To express the costs as so much per 1,000 cu. ft. of gas pumped would not be satisfactory, as owing to the varying intake pressures the work done by the engines would often vary in inverse proportion to the amount of gas pumped. Again, if we take the horsepower hour as a basis the difficulty of measuring it accurately makes it prohibitive. The curve (Fig. 2) illustrates how much the actual b. h. p. of the engine differs from that computed theoretically, and owing to the fact that this difference is not a constant quantity, but will vary for all intakes and discharges and for all types of compressors, the difficulty of correctly determining the horsepower is such as to render it practically impossible. The writer has always contended that inasmuch as the engines in the plants he is at the present time associated with average about 75% of the full load, and that apart from the fuel used the other items entering into the cost of operation and maintenance are almost the same whether the load factor be 50% or 100% per engine, the fairest and in all ways most suitable unit is the engine hour, and it is upon this partly that comparative results are made. The writer uses the word "partly" advisedly, for owing to the fact that different stations work under different conditions discretion must be exercised to avoid arriving at unjust conclusions.

The average cost expressed per engine hour of the main engines at the Grabham station for the months of November and December, 1910, and January and February, 1911, was $1.11 with an engine hour factor of 76%. This cost includes all expenses for operation, the maintenance and repairs of all main and auxiliary machinery, buildings, and lines in the vicinity of the station, as well as a portion of main office expenses, but does not include either the cost of fuel, depreciation charges, or interest on the investment. It is of interest to convert this cost per engine hour into the standard in use in electric generating station work.

Considering an alternating current station with an alternator efficiency of 92% the $1.11 per engine hour becomes .162 cents per k. h. w. and adding the fuel at a cost of 12 cents per 1,000 cu. ft., and fuel consumption to include auxiliaries and heating $1.11 becomes $2.73 and the cost per k. w. h. 41 cents. These relative costs are based on a load factor of 90% on the possible net output of power, the costs of the auxiliary machinery being carried by the main engines, the 13,500 cu. ft. is taken from average records.

At the Petrolia station in addition to seven gas engine compressors of the standard type, there are two cross compound condensing Corliss engines, having 5% less compressor displacement than the gas engines. A few comparative results may be of interest. The operation labor costs are about the same per engine hour on the two plants; considering the prices of the different oils used, the lubrication cost is equal. It may interest you to know that the cost of oil for lubricating the entire plants of Petrolia, Grabham and Scipio the last five months has been 9 cents per engine hour of the main engines.

The repairs and upkeep of the gas engines is more expensive than the steam, but is, in the case under consideration, approximately offset by the cost of keeping the boilers scaled and tubes replaced. The fuel for doing the same work is from 2¼ to 2½ times as much with the steam as with the gas, and when the two plants are at "stand

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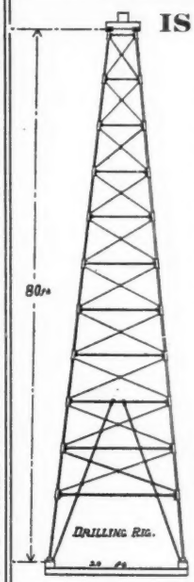

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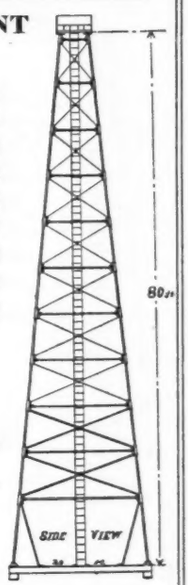

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NEXT WEEK
Natural Gas Engineering
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by" the gas power is not using any fuel, whereas the steam plant boilers are consuming 5,000 cu. ft. per hour (the equivalent to running a gas engine for half an hour), to keep up steam, and in spite of this will require about 30 minutes before being ready for load, the gas engines being available in a few minutes.

Summarizing, it would appear that apart from fuel consumption there is not much difference in cost of operating and repairs, that the internal combustion engine gives a fuel saving of 60% in actual service, has a maximum efficiency at "stand by" inasmuch as it is ready on a moment's notice and requires no fuel until started.

So far as reliability is concerned, that of either in the particular work we are interested in is beyond question, although the load factors or rather engine hour factors may, in most extreme cases run at 100 per cent for two or three weeks at a time, with proper organization and a well designed plant reliability under these conditions can be made a certainty. An illustration of reliability that can be expected is afforded by the operation of Grabham station for a period of 31 days, commencing midnight December 4, 1909, and ending midnight January 4, 1910. The engine hour factor for this period was 96% and of the 4% lost 2.6% was due to the engines not being required, the remaining 1.3% being taken up between shut downs for hot compressors and small adjustments and repairs on the engines. During the same period Petrolia and Scipio had engine hour factors of 90% and 82% respectively, they being lower than Grabham, not on account of mechanical troubles, but due to the fact of their not being required.

In conclusion, efficient operation must be the outcome of a well directed organized system, an organization working in co-operation, and as a unit with clearly defined ideals as a basis. The ideal in the case under consideration must be efficiency with its interpretation of reliability and economy.

Those responsible for the success of the system and forming part of the same must strive ever to keep these ideals prominent and must endeavor to get results not so much by continually calling attention to mistakes and shortcomings as by the establishment of such principles of order and efficiency as to largely eliminate the possibilities of their occurrence, and although continually having to criticise and look for the best labor the market affords they should always be striving to make this best a little better.

Where possible standards should be established, for by doing so not only will the elements of uncertainty in the way of costs and performance be eliminated but efficiency and simplicity gained. I allude to standard ways of doing work, standard supplies, standard routine of operation, standard adjustments, standard wages, etc.

The superintendents of all plants should rule with strictness but treat with absolute justice the men under them and have full control to hire and discharge as conditions may require; if possible a standard number of men however, should be allowed, which should only be exceeded to take care of exceptional conditions.

As vacancies occur in the organization they should whenever possible be filled by promoting employes, and to facilitate this the general scheme should be one of graded positions, vacancies occurring being filled from the grade immediately below, the new man being taken in to fill the lowest position. In the organization there is no room for prejudice, men so biassed are not wanted, and least of all in positions of responsibility.

Reports and records kept by the superintendents should entail as little work and be as consistent as possible, the simpler they are the more accurate they will be.

Arrangements should be made so that the superintendents of the different stations can meet periodically for the purpose of exchanging ideas and experiences with each other, and also for the purpose of receiving such instructions as are best given to them collectively.

A good cost system is a necessity; of almost as great importance is the presenting of the monthly costs in tangible shape to the superintendents.

In natural gas, men have been handling a great natural resource, and the history of the industry, like that of many others to which nature has bountifully contributed, has been identified with a good deal of waste. As natural gas engineers, to each of us is vouchsafed the honorable privilege of doing his part in the work of putting this great natural force to the uses of mankind; let us then ever aim to accomplish our tasks with full appreciation of economic principles and strive for "efficiency" in all our methods.

Discussion.

President Garard: Gentlemen, you have all heard Mr. Posgate's very interesting paper. If there are any questions you want to ask him, I know he will be glad to answer them. We will be glad to have a discussion of his paper if you care to enter into it now.

William M. Welch: I do not know whether it is in order in connection with Mr. Posgate's paper, but I would like to lay a little more emphasis upon one feature of his paper and that is with reference to the question of taking care of repairs. Practically all of the repairs are made in our own machine shop with the men as given here on the list of regular men at the station, and the cost incidental to such repairs is taken care of in that way. We could operate our stations with a considerable less number of men if we were to go into the market and buy all of the packing arrangements and packings and all of the miscellaneous material which is used in a plant of that kind and character. However, we do not buy them, but they are made as I have indicated. In that way we save a great deal on the first cost of the material and have the men right there so that they can make whatever spare parts are necessary, and in that way a great saving is made.

President Garard: Are there any others who have anything to say on this subject?

E. D. Leland: I notice Mr. Posgate in his paper refers to certain conditions "during busy months." I would like to ask him what are the busy months.

J. S. Posgate: More particularly the six cooler months of the twelve.

E. D. Leland: Then, I would also like to ask Mr. Posgate how long this system of cost report has been in vogue at the Crabham station?

J. S. Posgate: As I have described it, the system complete has not been in vogue more than eight months. Prior to that time, of course, costs were kept and the system was more or less the same as I have described it to be in this paper. The table that you see in the printed copy of the paper and which is given to the superintendents at the expiration of each month has only been in circulation or in use about eight months in its present form.

E. D. Leland: Mr. Welch's explanation of the men being used for the purpose of making repairs, repair parts, etc., I presume is in the interest of economy so as not to make the repairs cost more, as would be the case if many of those repair parts were purchased on the market. I presume his idea is that by so doing the repairs cost less.

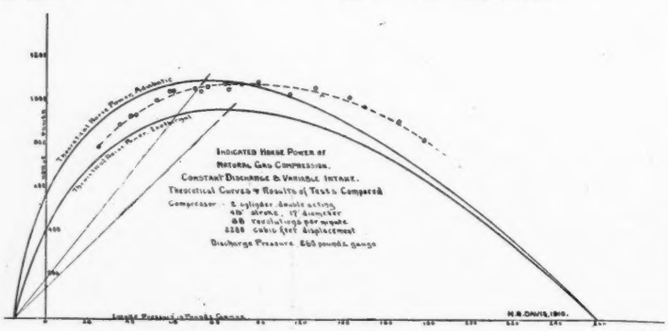
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FIG. 2, ILLUSTRATING POSGATE ADDRESS.

W. M. Welch: I didn't quite follow your remark there.

E. D. Leland: I say the purpose, I presume, in making repairs in the different shops, is to make them cost less and not more.

W. M. Welch: Certainly. The purpose of having our repairs made, as I have indicated, and as Mr. Posgate has suggested in his paper, is in the interests of economy as well as in the interests of efficiency.

E. D. Leland: I was going to suggest that an approximate statement of the cost of repairs per unit per year would be very useful.

W. M. Welch: We have all that information in this chart here, which is found embodied in Mr. Posgate's paper. However, the detail of all the information, of course, has not been carried into this tabulated statement, but as you will see each job number is described, together with the total cost of it. For instance, job No. 1 at the Grabham plant shows the operating costs, operating main gas engines and compressors, including the oiling system, and every part of the expense down to a half a cent is charged into that account. We would be very glad to show any member of the association the details which enter into these operating costs and which, of course, were too numerous to have embodied in a chart.

E. D. Leland: The point I had in mind was as to whether by keeping the costs in this way, you were able to ascertain what the repairs actually were.

W. M. Welch: We know exactly. Mr. Posgate has been using this form since last May. The system of job numbers has been in use for several years, that is, charging everything to the job and designating the job by a number, and then by adding together the costs for the various jobs and the costs with reference to the various plants, the total is a complete summary of the entire cost. This particular system, as I have stated, has only been in vogue in its present form for about eight months.

E. D. Leland: If we could get the average cost for four, five or six years, it would certainly be very useful information. Of course, I would not want to inquire into any trade secrets, but if you could get us something along that line, we would be very glad to have it.

W. M. Welch: Mr. Posgate or I would be very glad to talk to you at any time about it and to go into the minutest detail, and if you would like to make any inquiries along those lines, please do so. We have the necessary data here whereby I think we can give you any information you may want.

E. D. Leland: I very highly approve of this system of costs.

W. M. Welch: We do, too.

William H. Hammon, Pittsburg, Pa.: Mr. Chairman, I just rise to express my commendation of the very instructive and carefully prepared paper read by Mr. Posgate. I have not been in the natural gas business very long and yet I have been in it long enough to appreciate the fact that the compressing business is really getting to be an engineering problem and should be treated as such and should be handled really in a scientific manner. It is evident from the system suggested by Mr. Posgate that all of the detail and information desired by an engineer is being put into such shape that it will be available for just what Mr. Leland has suggested. I have never heard of or seen anything quite so complete as the system suggested by Mr. Posgate or a paper that gives such promise of intelligent aid on the subject treated as the one we have just heard read. I wish to exppress my hearty commendation as one of the members of this association for the valuable contribution to the natural gas literature of our association.

Charles Craft: With reference to the matter of operating expenses, I was wondering why they run so high, and why there are so many men required. Of course, there is a great amount of work inside, but in the plant with which I am connected we had a very considerable amount of outside work also. Mr. Welch has stated that they manufacture their own repair parts, but I would like to understand why it is so many men are required and whether they are continuously employed or whether they are dropped off when not needed.

J. S. Posgate: The list of men that I give there is a list of the men we have had on throughout the year or very nearly so. Now, the only basis of comparison that can be made in an operation of that kind is on the basis of the cost per engine hour of run. There are many plants throughout the country using one-half the labor that we are using, but they are plants, possibly, allowed to go down, and then they are required to spend six or seven thousand dollars in one lump sum to lift them upon their feet to a standard of efficiency which their demands require. I am speaking, however, about a plant that is always kept up as nearly as possible to 100 per cent. mechanical efficiency. We have to keep sufficient men to run nine engines at a moment's notice, and that is why you see in this statement here nine oilers. As Mr. Welch has remarked, we make most of our repairs and that keeps some few men busy. So, on down the line you will find that we have employed continuously the help made necessary to have our plant at all times approach as nearly as possible 100 per cent. mechanical efficiency. You will notice from this table the duties which each man is required to perform. In my opinion if we were to cut down the list of men below what we have indicated, we would lose correspondingly in efficiency, and instead of the line of efficiency being horizontal, it would curve down and up and down, and when it got down to a low state of efficiency, then considerable money would have to be spent to lift it up. We, on the other hand, try to keep a horizontal line all the time as indicating continuous efficiency at all times.

M. M. Sweetman: Mr. Posgate, let me ask you a question. Isn't it a fact that in those plants over which you have charge, you not only repair the engines, but you do the machine work for the pipe lines and the other repair work necessary to be done on the property of the company, including repairs on automobiles, wagons and drilling machines?

J. S. Posgate: Yes, that it so.

M. M. Sweetman: How about the water you are using?

J. S. Posgate: There is a pumping station some six miles from the river.

M. M. Sweetman: Is it good, clean water or not?

J. S. Posgate: Very high in carbonate of lime.

W. M. Welch: With reference to the matter of water, I want to say that one of our greatest costs or expenses during certain seasons of the year is occasioned on account of an effort to get rid of the scale which forms in the tubing, etc. In that connection I would say that considerable trouble is caused in cutting the scale from the boilers in the Petrolia plant where we have two engines approximating 1,000 horsepower, and where we keep two men constantly at work cleaning scale, with one boiler always shut down. We do not operate them any more than we have to and I believe that since January 1 at that station, we have not operated those engines more than two days, so that the expense of operation at that plant was way out of proportion to the expense of operating the engines at the other plants. I would say one thing further in connection with the system of taking care of our plants. We have one man who, when he went to the Petrolia plant six years ago, was a steam engineer. He had never operated a gas plant. Since then he has been operating gas engines and now it is his exclusive duty to anticipate repairs. He does not do anything else. He does not have charge of any plant or of any men, but he goes from one plant to another, talks with the men, co-operates with Mr. Posgate, and anticipates repairs. In that way we keep down our operating costs regardless of what apparently seems to some gentlemen a high list of men on our operating pay-roll. It may be a high list of men, but when you figure the cost down to so much per unit, we think in that way by using the system which has been suggested by Mr. Posgate that we can keep the costs down to a minimum.

C. Craft: After listening to Mr. Posgate's remarks about the expense of running stations, I would like to state that I operate a 2,700 horse-power station with two Westinghouse twin tandem units with auxiliary plant boiler for heating and all, with four men and a chief engineer, and at a total expense of $435 per month. In a period of eleven months only $4 have been spent for extra labor and that to clean sediment out of a well. In addition to all this, the force above indicated painted all the buildings, in and out, last summer, and up to this time all valves, inlet as well as exhaust, have been ground, twelve new T's have been installed on the exhaust lines, and we have had time even to use the lawn mower and keep something like a half an acre of lawn in condition. Our expenses for oils are as follows: For one engine, $2.25, ten cents for waste, or double the amount when running both units.

J. S. Posgate: Where is your plant located?

C. Craft: Howard, Ohio, the Mohican Oil and Gas Company. I would like to know if anybody can beat that.

W. M. Welch: I want to commend the gentleman for his off-hand knowledge as to the conditions of his plant. He certainly shows a knowledge of what he is doing. In that connection, I would like to inquire the load conditions at this point.

C. Craft: We try to keep the efficiency of the plant as near as possible to its maximum of 100 per cent. during the greater part of the time.

W. M. Welch: Of course, if a plant is kept up to its maximum standard of efficiency at all times, whether it is running a good load or a small load, would make a very considerable difference in the matter of upkeep. Of course, as suggested by Mr. Posgate in the plants which he has described, it has been his endeavor to arrive as nearly as possible at a maximum standard of efficiency and to keep the plant at that line of efficiency at all times. We are not advocating that this system be installed, unless it meets with the approval of those in charge of a given plant, but we are simply attempting

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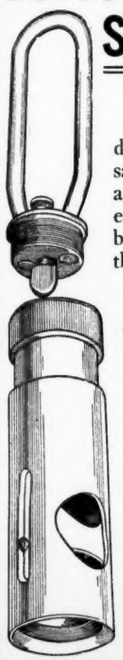
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to show what can be done with a natural gas plant in an effort to keep it at all times up to its standard of efficiency and at the same time keep the operating expense as low as possible, consistent with continual efficiency without regard to load conditions.

Fred V. D. Longacre: Speaking of maintaining as nearly as possible 100 per cent. efficiency on an engine it is necessary to anticipate trouble as far as possible. I would like to inquire if there are any analytical methods used further than observation by the eye to ascertain what may be required in this regard? Generally speaking, are there sufficiently accurate records kept of your performance factors with reference to your engines and your compressors so as to know exactly what they are doing in maintaining the high efficiency desired? I would like to inquire to what extent you cover that feature of the business?

J. S. Posgate: There most certainly are: Indicator cards are taken regularly. The loads that the different engines handle are watched closely. Great attention is paid to the mechanical behavior of the engines. Every effort is used not only to arrive at a high standard of efficiency, but to maintain that standard continually.

F. V. D. Longacre: A great deal can be lost that you cannot see or observe.

J. S. Posgate: Yes, a great deal can be lost that you cannot see, but by taking indicator cards regularly off the compressors, you are kept in touch with the conditions of things so as to anticipate trouble. If the engine starts to balk, by means of these indicator cards, you can readily detect it. For example, if the engines are knocking, you know that there is something wrong in the bearings or the igniters or something of that kind. When the engines are running continuously, possibly, for two or three days at a stretch, great care must be exercised in watching the condition of those engines to see that the various parts are working and will continue to work as required in order to produce the standard of efficiency you are seeking to maintain. By watching things very closely and by proper and systematic reports—not too long—but reports which give the ultimate facts, you can easily, I think, keep a very close line on the condition of the various parts of the station and thus insure its mechanical efficiency being at a high standard all the time.

W. M. Welch: Mr. Posgate carried that further than he has stated. He has, for instance, records of the position of the rods on every engine, how high they are from their bearings. He knows exactly how high each rod is all the way through. That information is furnished by the engineer and is then checked up by him and in that way by means of indicator cards and the records as indicated we are able to anticipate trouble in a very large measure.

Thomas H. Weymouth: One of the important factors in the mechanical operation of a station is the oiling system. I would like to ask Mr. Posgate to state what system he has adopted for accounting for the oil used? That is, do you keep an individual record of the oil used by each engineer, or is it done as a whole?

J. S. Posgate: There are records kept of the oil used on each engine for each shift. In addition to that the oil is checked up as it is taken from the storage tank outside the building and personally I may say that those are the figures that interest me the most. For instance, there may be 7,000 gallons in the tank outside and 50 gallons may be taken out of the tank and put into the engine. Now, that is checked both by the engineers and by the storekeepers. If they should cut out two or three gallons at one time, then they have to make it up. In addition to that as an oiler draws the oil out of the tank alongside the engine, he has a brass plate with pegs in it like a cribbage board on which he indicates the amount of oil that has been drawn out. But it is the other figures that I attach more importance to and that I am always interested in and that is the total oil consumed.

T. H. Weymouth: Does that include the circulating system?

J. S. Posgate: The oil that he records on the brass plate does not include the gravity overhead system. It only includes the oil that he uses in the cups. But the oil that is taken out of the main storage tank is measured and so much charged up to operation.

T. H. Weymouth: Don't you think a little friendly rivalry between the various engineers is a good thing in that way?

J. S. Posgate: Yes, that is true. I think it an excellent thing to put it on a fair basis of competition, and when they begin to get too narrow about it, then have somebody with authority to step in and ease them off a little. I think it is an excellent thing

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to put men on a competitive basis and to let them know that you are watching them, which is the basis of the system that we use both as to oil and everything else.

President Garard: Gentlemen, we have had considerable discussion on this paper. We have another paper following along the same lines practically. I do not feel we can devote any more time to this particular paper now, and while it is a very interesting subject and while we would like to continue the discussion, I am afraid it will make us too late with the discussions on the other papers we are to have this afternoon. I would, therefore, suggest that we call on Professor Magruder to read his paper at this time, and as the two papers treat of kindred subjects, we can then discuss both at the same time.

W. H. Hammon: Mr. Chairman, before closing the discussion I would like at least to move that we tender a vote of thanks to Mr. Posgate for this very valuable paper and as a slight evidence of our appreciation to Mr. Posgate for his most excellent paper, I suggest that the motion be adopted by a rising vote.

The above motion was then duly seconded and unanimously adopted by a rising vote.

President Garard: The next paper on the program is on the subject of "The Need of Engineering Investigations in the Production, Transmission and Use of Natural Gas," by Prof. William T. Magruder, of Columbus, Ohio. I now take great pleasure in introducing to you Professor Magruder.

THE NEED FOR ENGINEERING INVESTIGATIONS IN THE PRODUCTION, TRANSMISSION AND USE OF NATURAL GAS.

William A. Magruder, M. E.

The spirit of the age is the spirit of investigation. The oldest man in the association vies with the youngest in a mutual desire to hear of new things, to learn of new ways of doing old things, and of finding out easier ways to do everything. This is true not only of individuals but of companies, corporations and governments. The Germans, with the thoroughness which seems to be a normal trait of that people, have almost a mania for investigations and researches, as compared with their more conservative Anglo-Saxon cousins. Hence we find research laboratories connected not only with the empire and the individual states thereof, but with many if not most, of the large manufacturing corporations of the country. A premium is placed on brain power: and from one to upwards of fifty men, trained in the universities, and with doctor's degrees in science of philosophy, experiment in each laboratory, guide the manufacturing process, and devise new and better ways of meeting present needs and of advancing the practical applications of science to the arts.

In this country, the leading railroads and manufacturing establishments find that it is to their financial interests to maintain research laboratories, some of which cost upwards of $300,000 annually, and are considered as "a financial asset." In fact, it is these research laboratories which, when properly conducted, enable the manufacturing departments to earn a dividend, and direct them to new lines of activities when the market demands a change. The testimony of the officials of one railroad is to the effect that one investigation costing less than $5,000, saved that road something like $50,000 annually. But it is not the government and the corporations alone which are interested in engineering investigations. In each tool room, factory, power plant and pumping station, one or more investigations are continually going on for the information of some one man or official. Unfortunately, the results are usually stored away in memory, buried in notebooks, or hidden in safes. It is the province of the Question Box and of the Wrinkle Department of associations like this to tempt the owners to dig up this buried knowledge and to donate chapters from their book of experiences to their fellowman.

The greatest trouble with all such work in the past has been the difficulty in getting competent persons to conduct the investigations and to complete them. A still further trouble has been to put the results into such shape that others could use them. Many men are able to do things, yet are quite unable to tell others how they should do the same thing. This is true of most of the industries.

Secrecy may be necessary in certain processes and among competing companies, but it would seem that among the distributors of natural gas, there is no justifiable need for secrecy in the methods used in its production, transmission and use. Heretofore, the greatest preventives of engineering investigations by individual natural gas companies have been the cost of the work and the lack of need for same due to the excess of the supply over the amount of gas which could be advantageously used. One state geologist is on record to the effect that only ten per cent of the natural gas produced in his state was ever used for the benefit or pleasure or mankind. This means that 90 per cent was allowed to be wasted in what seems to have been the selfish idea that possibly someone else might get the gas.

The time has now arrived when, in the opinion of some, the natural gas resources of the country should be conserved for the use of the present owners, even if not for future use. It is also beginning to dawn upon distributors of natural gas that it is not a wise business policy to pay $1 for an article, and waste from 20 to 50 per cent of it, even if the remaining 50 per cent can be sold for $2; and that a second $2 or even half of it, would not come amiss in meeting extra expenses, to say nothing of paying extra dividends. Again, as natural gas begins to be more and more an article of retail trade, rather than for wholesale use, its economical use by the small consumer comes to be more and more the object of solicitous thoughtfulness on the part of general managers and directors, as it is found that more profit is obtainable from the sale of 1,000,000 cubic feet of gas to many retail customers than to a few wholesale consumers.

From the above it will be seen that any investigation which will cause a greater production to be obtained, more gas transmitted and delivered, fewer leakages to be allowed, and more gas to be economically used will tend to the greater utilization of this natural commodity, the satisfaction of customers and to the increase of profits.

Some of the subjects which it is thought that the members of this association would be profited by investigating by the Question Box, Wrinkle Department, or by the research laboratory method are the following:

1. As to production. What is the best method of drilling wells, by the use of steam power or by natural gas? When natural gas or oil is available, why should steam power still be used? Now that pressed and structural steels have entered so generally into the manufacture of so many structures and machines, why should they not enter more generally into the construction of derricks? How can leakage at the well be better prevented?

2. As to transmission. Below what suction or well pressure, does pumping become advisable? If compression is desirable, what should be the diameter of the pipe line and the initial pressure at the pumping station for the minimum cost of pumping and transmission, all things being considered, including interest on investment, operation and sinking fund? Why continue to use and purchase gas compressors having efficiencies as low as 50 per cent, and which deliver only from 50 to 80 per cent of the piston displacement and have from 20 to 50 per cent of slippage? What is the transmission capacity of a pipe line of a given internal diameter and known length for a given initial pressure? What will be the terminal pressure for a prescribed flow? What is the capacity of a leak in cubic feet of free gas per 24 hours? What is the best form of non-leakable pipe joint for lines at less than 100 lb. pressure? For those at from 300 to 600 lb. pressure? What is the most efficient (not necessarily the cheapest) method for stopping a leak in a pipe joint under each of the conditions named above? What is the maximum amount of leakage in cubic feet of free gas per mile of mains which should be tolerated? What is the cost of a leak in dollars and cents?

3. As to the measurement of large quantities of gas. What amount of error is commercially permissible? How often should proportionate meters be tested, proved, corrected, and calibrated? Why need they be sent to their manufacturer or to a proving station, rather than be proven and corrected in the field at the meter station by the use of a calibrated pitotmeter and renewable parts? If the meters now in use are not as satisfactory as desired, may not the use of one of the newer forms of gas meters for large volumes warrant the difference in first cost by the continued accuracy of its automatic registrations? If these should prove to be not well adapted to this particular use, cannot a meter be designed which will more accurately measure the number of cubic feet of free gas passing, and corrected for variable pressures and temperatures? In other words, will not the demand for a better meter create the supply?

4. As to old uses. What is the most efficient form of pressure reducing valve? Why do not manufacturers of same more closely follow Boyle's law that volumes are inversely proportional to absolute pressures? How long and how large in diameter should be the orifice in a gas stove, or other similar utensil, to permit the flow of a definite quantity of gas at different pressures? What is the most economical pressure for the distribution of natural gas to the domestic consumer from the viewpoint of the consumer? From the viewpoint of the company? Should all service lines be provided with pressure regulators, and more especially for industrial uses where variations in pressure may cause large losses?

5. As to new uses. The production of gasoline, either at the casing head and from drips, or from compression, leads to a number of subjects worthy of investigation. For example, what are the physical and chemical differences between a dry gas and one from which gasoline can be extracted? How can a natural gas be most easily tested for available gasoline? And for the quantity of same? If to be extracted by compression, then at what pressure? Would not fractional compression produce a variety of naphthas, benzines and petroleum vapor distillates? What should be the amount of condensable vapors available in order to render compression financially desirable? What would be the change, if any, in the calorific value of the gas before and after compression? Is it really true that the "impoverished" exhaust gas remaining after the extraction of the gasoline is valueless for heating purposes? These and many other questions might be asked concerning this interesting branch of the industry.

6. As to other new uses. In the light of later knowledge and with the experiences of the ammonia refrigerating engineer to draw upon, may not the natural gas engineer now be able to overcome the objections and difficulties peculiar to the use of high-pressure natural gas as a refrigerating fluid? At any rate the increasing demand for refrigeration and for power leads to the suggestion that the subject warrants further study.

Each member of this association doubtless has many questions which he would like to ask, and problems he would like to have solved, but which he does not care to tackle individually.

The above are but a few of the many subjects which might be investigated if brains, skill, opportunity and the financial means were available. The answers to many of these questions and valuable opinions on a number of these subjects could be given by many of the members present; but it would probably surprise them to see how much the answers would differ as given by men of experience in the industry.

I take the liberty of suggesting that this association authorize the appointment by its governing council of a committee of three or five members to be known as the committee on engineering investigations, and whose duty it shall be to devise means for solving some of the above-mentioned problems. I would suggest that the association make an assessment upon the contributing companies of so many cents per million cubic feet of gas sold, or in such other way as may seem most desirable; that the money so secured be used by the committee in such investigations as give promise of being of the greatest benefit to the members. To do so, one or more of the younger graduates of one or more of our engineering colleges might be set to work to solve one or more of these problems under the general direction of the committee. Reports could be made to the association each year, and eventually put into printed form so as to be of permanent benefit. The trustees and the faculty of the College of Engineering of the Ohio State University would be probably glad to offer the facilities of its laboratories so far as they can be used for such investigations. One or more associations have similar arrangements with the university at the present time, and similar arrangements are possibly in force with other engineering colleges. This association representing an industry whose output in 1910 was valued at $57,000,000, can well afford to investigate and solve the problems of the industry. By some such scheme as this, the association would be benefited, leakages would be decreased, natural gas would be conserved, and the field of utilization of one of our greatest natural resources be enlarged.

Discussion.

President Garard: Gentlemen, you have heard Professor Magruuer's very interesting paper. I know he will be glad to answer any questions that you may care to ask him and we will be delighted to have some of you enter into a discussion in regard to the matters that he has written upon. I notice in this paper that he asks us a good many questions and I would like to see some member get back at him by asking him some questions.

T. H. Weymouth: With reference to the third paragraph of this paper, I would like to suggest that Prof. C. C. Thomas of Madison, Wis., is with us and it would be very interesting I think to have him give us his solution of the proposition.

J. C. McDowell: Mr. Chairman, while many of the queries propounded by Professor Magruder have been investigated for a number of years and some of them answered by engineers, yet there are a number of very interesting matters that are, or should be, the subject of investigation by every man or by every company interested in the production, transmission and use of natural gas. There are three matters that particularly occur to me at this time, one of which is the transmission of gas through lines. There has been a tendency the past year to carry gas at higher pressures until now 350 pounds initial pressure from the pump is not an unusual thing. Four hundred pounds is entirely within range and I submit that within a very short time certain gases will be carried at 500 pounds initial pressure. Indeed, it may be said that higher pressure is the tendency of the times. Another question that he raised is the question of more efficiency and greater care in the measuring of gases at high pressure. It is a subject that we are all considerably concerned in. More gas is being purchased by companies in the field every year from the wells and the business likely will increase rather than grow less. Constant watchfulness and care by men of ordinary ability does not seem to keep the proportional meter in condition at all times to be relied upon. This is a point that needs particular attention.

Natural Gas Gasoline.

The other matter that I particularly refer to is the extraction of gasoline from natural gas. "Condensates" is probably a better word, because there are so many gasolines and it has become such a general term that it is hardly fair to use it with the hope of being specific. Some very important investigations have been carried on for the past two or three years. There is a great deal of rule of thumb work, however, going on at the present time and which I fear may result in disaster. However, there is some very intelligent work now going on and the results may be relied upon as very satisfactory. I would heartily approve of the suggestion made by Professor Magruder that a committee of men be appointed to take up and investigate certain features connected with this subject, and, particularly, the new features. Some of them are so old that we all recognize them. But there are a number of new features as well as some old ones which require thorough investigation. If such a committee were appointed and we were to receive reports from such committee, then we might all be able to accomplish definite things along lines where heretofore we have been acting as individuals. Then what is being done by different parties along these lines could be gathered together in the form of a report and submitted to this association, so that it may be brought before us in a form whereby we can all gain the benefit of such research and investigation. If such a report were presented in the form of a paper, it would then be a matter for discussion, and the results to be obtained from such a course, it seems to me, would be apparent to all, because what is good in one instance ought to be good for all of us.

President Garard: We will now be glad to hear from Professor Thomas.

Mr. Carl C. Thomas, of the University of Wisconsin: In response to the request of Mr. Weymouth that I should describe the new meter which has recently been applied to the measurement of natural gas by the People's Natural Gas Company, I would say:

The meter is designed for measuring the rate of flow of either gas or air. The operation of the meter depends upon the principle of adding electrically a known quantity of heat to the gas and determining the rate of flow by the rise in temperature of the gas between the inlet and outlet of the meter. This principle lends itself to the operation of a meter having the following characteristics:

1. There are no moving parts inside the meter or in contact with the gas.

2. The accuracy of the meter and its sensitiveness are independent of the rate of flow of gas, and of fluctuations in pressure and temperature.

3. The meter may be used to measure gas at high pressure as well as at low pressure, and is independent of small fluctuations in pressure, such as those in the discharge from an air compressor or in the suction of a gas engine.

4. The meter produces a continuous autographic record showing the rate of flow and its variation, and gives a record in "standard cubic feet" of gas, referred to any desired standard of pressure and temperature, as for example, 60° F. and 30" mercury.

5. Meters of comparatively small size have very large capacity.

6. Some gases, as for example blast furnace gas, carry mechanically suspended excess moisture from cleaning apparatus, condensation, etc. Where this is likely to be the case the inlet to the meter is provided with a separator and a small steam coil or radiator, in the gas passage, by means of which the pipe is freed from water, and the gas is completely dried before it enters the meter. A very small amount of steam suffices for this purpose.

7. The meter may be opened for inspection, for blowing out accumulated matter with an air blast or for washing with gasoline.

8. The record of rate of flow can be taken at any distance from the meter at any point where it is most convenient to locate the switchboard and recording mechanism.

Construction of Meter.

The meter consists of an electric heater, formed of suitable resistance material disposed across the gas passage in such a way as to impart heat to all of the gas passing through the pipe line of which the meter forms a part. The temperature of the gas is thus raised from that at entrance, to some higher exit temperature, and the rise of temperature is controlled by means of two electrical resistance thermometers, on the two sides of the heater, in connection with the automatic regulating mechanism shown on the switchboard.

The thermometers are in the form of ruggedly made screens of resistance wire, so disposed as to come in contact with all the gas passing through the meter. They form two arms of a Wheatstone bridge which by means of the deflection of the galvanometer needle causes the controlling mechanism to cut in or out the electrical energy required to maintain a fixed temperature change in the gas. The record of gas flow is read directly from the dials of a commercial watt-meter of the integrating type; or, if desired, from the curve drawn by a graphical watt-meter.

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the flow of gas in this way may be easily understood from the following explanation: Suppose gas or air to be flowing at a uniform rate consisting of resistance material through which electric current is passing, and from which, therefore, heat is being liberated. Suppose also, for the purpose of this explanation, that the heater is giving off heat at a constant rate, which would be the case if the voltage across the heater terminals should remain constant and if the resistance of the heater did not change. It is evident that if the rate of flow of gas and the liberation of heat are both uniform and constant, the gas will be raised in temperature by some fixed number of degrees as it passes through the heater, and this temperature rise will remain constant as long as the conditions do not change.

Now suppose that the rate of flow of gas is increased, but that the rate of heat liberation remains the same as before. Obviously, the constant amount of heat being given off from the heater will be unable to raise the temperature of the greater amount of gas as high as it raised the smaller amount, and the temperature difference will therefore decrease. Conversely, if the gas flow decreases, the temperature difference will increase. In brief, the temperature difference varies inversely as the rate of flow of gas, so long as the rate of heat liberation is kept constant.

During the development of the meter the method of measurement just described was used; that is, the rate of flow of gas or air was measured by a graphical temperature recorder, showing the rise of temperature produced by a known amount of heat added to the gas. But this method, while excellent for the purpose of research, where constant voltage conditions are obtainable, is not applicable to the case of meters in commercial service where constant voltage is almost never found. The meter designed for commercial use is therefore operated by the following method, which has numerous advantages besides that of being independent of voltage fluctuations.

In commercial meters, instead of measuring a varying temperature difference, the temperature difference is kept constant, and the watts required to maintain this constant difference between inlet and outlet temperatures, vary directly as the quantity of flow of gas or air. The watts input thus forms the measure of the quantity of flow of air or gas, the watts being measured by a graphically recording watt-meter, or by an integrating watt-meter. The fixed difference of temperature (about 2° Fahrenheit) is maintained by the action of a device made upon the same general principle as the well-known autographic temperature recorders used in connection with resistance thermometers.

This controlling device is made on the principle of the Wheatstone bridge for measuring resistances, and operates so as to change the energy input to the heater according to the difference in electrical resistance between the two thermometers, this difference in resistance depending on the extent to which the gas leaving the meter through the outlet thermometer has been raised in temperature. As soon as the difference in resistance becomes greater or less than that corresponding to the desired two degrees temperature difference, the controller causes the operation of a small rheostat, the movement of the rheostat being such as to restore the balance between the thermometer resistances, this balance being attained only when the temperature difference has become two degrees. Thus, as the rate of flow of gas is increased, the temperature difference tends to decrease and at once additional energy is introduced sufficient to heat the increased weight of gas so as to maintain the constant temperature difference of two degrees.

The accuracy of these meters is not affected by changes in pressure of the gas or air, since the unit of measurement is that of weight rather than of volume; that is, the meter takes cognizance of the specific gravity, or the amount of "stuff" in a given volume of gas or air. Also variation of temperature of the incoming gas does not affect the accuracy of the meter because it is a difference of temperature, rather than a fixed temperature, upon which the measurement depends. The meter can therefore be used for gas or air at either high or low pressure, and at either high or low temperature, provided that the materials used in construction are suited to the conditions.

The meter is especially well adapted for measuring the discharge of gas or air from compressors, blowers, etc., because the small and rapid periodic fluctuations of pressure, due to either suction or discharge conditions, do not interfere with the steady action of the thermometers. The time lag of the latter is sufficient to smooth out the curve of watts input or of temperature variation, as the case may be, and true average results are thus indicated. The fact that the meter is capable of accurately measuring gas under varying pressures and temperatures makes it especially valuable for measuring natural gas, as well as compressed air.

The electrical energy required to operate the meter is approximately 1 k. w. per 75,000 cubic feet per hour, at atmospheric pressure.

The degree of success which has been attained with the electric meter is due principally to an extensive experience in this particular class of work, which has served as a guide in the development of satisfactory details. One reason, also, is that the operation of the meter depends upon the measurement of electrical resistance, which can be accomplished with greater accuracy than can the determination of any other known quantity. The resistance screens serving as thermometers make it possible to take account of the exceedingly minute changes in temperature, and the fact that the air or gas is heated by only two degrees Fahrenheit and is passing with considerable velocity, causes the heat losses to be so small as to be entirely negligible.

The meter is in commercial service, measuring natural gas at the Brave station of the People's Natural Gas Company, Brave, Pa., and is giving exceedingly accurate results, checked by the excellent equipment of Pitot tubes in use by that company. These tubes have been developed to a very high state of perfection. The Pitot tube and the pipe containing it are standardized together as a unit, the discharge from a 16-inch main being led through a series of six or seven 5-inch smooth brass tubes, each containing a Pitot tube. This enables the maintaining of satisfactorily high velocities at the Pitot tubes. The latter are placed about two miles away from the pumps at Brace, in order to avoid pulsations at the tubes. The electric meter is placed close to the pumps on the suction side and the results check almost identically with the Pitot tube measurements.

An electric meter is in service in Milwaukee, measuring all of the gas going to that city, the range being from 175,000 cu. ft. per hour to 3,000,000 cu. ft.

Mr. E. J. Fithian, Grove City, Pa.: In reference to the fifth paragraph in Professor Magruder's paper, I may say that we have had some experience in the production of gasoline from natural gas. I say gasoline, although there are many people who call it by another name. We, however, believe that it is a gasoline. The production of gasoline from natural gas has been going on more or less for the past eight years and a half since it entered into the question.

First, I would like to speak briefly as to the difference between dry gas and one from which the gasoline has been extracted. I would say that one of the physical differences shown in a very marked way can be demonstrated very satisfactorily by specific gravity, as the average natural gas has a gravity of from 52 to 60, while we find many of the gasoline carrying gases going as high as 150, these gravities being taken with air as 100 as compari-

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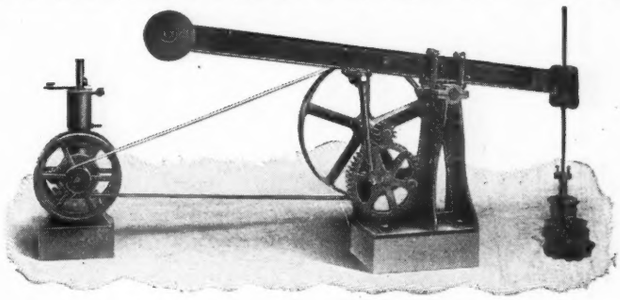

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son. I have seen natural gas come from oil wells reaching a gravity of 150 and better and so completely loaded with gasoline vapors that it was much heavier than air. The quantity of gasoline that an average gas will make is shown to a great extent by its specific gravity as well as the absorption test by the use of neutral oils and also the combustion test. These various tests give certain indications which by comparison enables one familiar with the business to predict within a quarter of a gallon per thousand cubic feet of the gasoline production of a certain gas.

As to fractional compression and the separating of the various gravities of gasoline at the different stages, I would say that the company which I represent, the Bessemer Gas Engine Company of Grove City, has made experiments along this line and is still making them, and such tests are developing some very interesting things in the production of gasoline from natural gas. The low gravities condensed at low pressure are suitable for the use of the average refinery gasoline. The high gravities, so far as our tests thus far have gone, point toward their use for the lighting of public and private buildings where artificial or natural gas is not available, as these high fractions made by second and third and a possible fourth compression are capable of gasification promptly on release of pressure and thus yield a gas very high in heat units and suitable for gas lighting in connection with Welsbach or similar lights. We find this gas which forms from the regasifying of the second or third fractional compression very high in heat units, containing per cubic foot two and one-half times the heat units of the average natural gas per cubic foot.

As to the production of gasoline necessary to render the compression of gases for the gasoline they contain, a business proposition, it will vary to a great extent with the conditions as to whether there is a market for the residue gas or whether it will have to be thrown off into the air. One-half gallon per 1,000 feet with 500,000 to 1,000,000 cubic feet of gas would pay very liberal for its extraction, provided the residue gas could be passed into the service line and sold as fuel at the usual prices for natural gas. In so handling gas it is not best to maintain the discharge pressure from the condensing equipment at above 50 pounds on a compression of 200 to 250 pounds. But if a liberal supply of cold water were available this pressure might be maintained economically at 75 to 100 pounds on the discharge side of the condensing equipment. Thus, the gas could be delivered in the service lines at a considerable pressure after the extraction of the gasoline without any further handling of the same.

As to changing the calorific value of the gas, this change depends entirely upon the amount of the gasoline extracted. The residue gas left, however, is, as a rule, an average natural gas as far as heat units are concerned. Since the gases carried by the natural gas condensable into gasoline will have an excessive calorific value in the gas treated over and above the average natural gas, the extraction of the same in the form of gasoline only leaves the gas carrying this condensate in its original condition as to heat value, and we might also say as to the volume prior to its gathering up the material which it is possible to condense into a liquid. So that, the residue gas after the extraction of the gasoline is available for heat, light or power, and has so been declared, as we understand it, by the public service commission of the state of New York.

The extraction of gasoline from natural gas as a business proposition is only about 18 months old and it is the opinion of those who have given it the most study that it will soon be as large a part of the production of oil and will be cared for as carefully as the oil itself. So that the average lease in the oil fields in the next year or two will contain the gasoline condensing equipment along with its present day power plant.

Prof. I. C. White: Do you know the B. t. u. that the New York state commission reported for the gas after it had been deprived of its gasoline?

E. J. Fithian: From 800 to 950 after the gasoline was extracted.

Prof. I. C. White: Per cubic foot?

E. J. Fithian: Per cubic foot, yes.

W. M. Welch: What was it before?

E. J. Fithian: It varies in accordance with the amount of gasoline that you take out. Many a gasoline runs along about 1,800 or 1,900 B. t. u. The gas which I mentioned as having provided the fuel for the lighting of Welsbach lights ran 2,500 B. t. u. per cubic foot condensed from natural gas. So that, if you have a gas that carries gasoline, you reduce the heat units of that gas by extracting the gasoline, but you do not reduce them below good natural gas.

J. H. Maxon: Where do you get that gas that has 2,500 B. t. u.?

E. J. Fithian: West Virginia, across the river from Steubenville, at the Ferguson plant.

J. H. Maxon: You really have it do you?

E. J. Fithian: Yes, and we would be very glad to sell you some or would be very glad to send you a package of it, if you want to experiment with it.

J. C. McDowell: I would like to ask Mr. Fithian what was the gravity of the gasoline extracted from the gas where you had ten gallons for example.

E. J. Fithian: As high as 110.

J. C. McDowell: That was the closed gravity and not the open gravity?

E. J. Fithian: I do not know that I understand your question.

J. C. McDowell: It must have been the gravity of the receptacle from which it was received. In other words, it was not the open air gravity.

E. J. Fithian: Just in the open tube.

J. C. McDowell: How much of that gasoline was retained before it reached stability?

E. J. Fithian: If you want to leave that gasoline stand in an open vessel you will lose 50 per cent. of it in 48 hours.

J. C. McDowell: At about what gravity does it remain stable?

E. J. Fithian: About 90 to 93.

J. C. McDowell: I want to say that I have so impoverished gas in experimenting, not with a small plant, but with a plant that would take care of 100,000 feet of gas a day, that the gas would not run a gas engine. I have never seen a gas yet measuring up to 2,500 heat units. I would like to know the composition of that gas.

E. J. Fithian: We simply tested it for heat units.

J. C. McDowell: But you tested it so as to obtain the exact B. t. u. in it, or did you simply estimate it?

E. J. Fithian: The test was made by Dr. Sepline, who is a recognized authority throughout the country on this subject. He made the test which the ordinary chemists recognize and he made the tests with standard instruments used for that purpose.

J. C. McDowell: Was it a chemical test or a physical test?

E. J. Fithian: It was in a regular B. t. u. testing apparatus.

Prof. Magruder: May I ask the gentleman at what temperature and pressure was that gas measured? In other words, was it a certain number of cubic feet of compressed natural gas or a certain number of cubic feet of free natural gas? The highest record that I know of for West Virginia natural gas is 1,250 B. t. u. per cubic foot at an atmospheric pressure of 30 inches of mercury and at 62 degrees Fahrenheit. Now, a record which doubles that calorific value is worthy of note.

E. J. Fithian: The gasoline from which that gas was obtained and those heat units demonstrated was a fractional separation of the possible gasoline from West Virginia natural gas. We first took out the heavier elements; then we took out the lighter elements in the second condensation or compression. The pressure ran only about 250 pounds in making the test and the gravity was about 110 on this sample. Now, we know that we have Blau gas made in Germany, formerly, and now in the United States as well, showing about 1,900 B. t. u. per cubic foot which is being sold in and around New York city and will be sold the country over, as I understand it, as a lighting medium for country residences where other gases are not obtainable.

William Donaldson: Mr. McDowell stated a few minutes ago that he knew of some rather scientific investigations which have been made in the extraction of gasoline from natural gas. I would like to know if Mr. McDowell has any record of such investigations having been made as affecting the gravities of the condensate by the different methods of compression. Mr. Fithian stated in a general way the higher the pressure the higher the gravity Beaume of the condensates, but I would like to know if Mr. McDowell is familiar with any investigations having been made with reference to the lowering of the gravity and the effect on the condensate by a different method of compression?

J. C. McDowell: In ordinary compression I would say no. There is no other method that I am familiar with at the moment. But in combining certain vapors with natural gas, I have been recently securing any desired gravity I wished ready for commercial use when it reaches the plant. The way by which that is accomplished is a matter with which we are still experimenting, and consequently I do not want to say anything further about it at this time, but I will say this, by the use of low grade 54 degree Beaume —I do not know whether Mr. Fithian would call it gasoline, but it is in the nature of kerosene oil—properly combined at the right point with heat and compression we have succeeded in taking out of a certain grade of natural gas as high as 14 gallons.

Wm. Donaldson: There is one question which I think could be added to Professor Magruder's list as the subjects for research and investigation, and that is what would be the lowest pressure at which it would be advisable to pump a well at a given rock pressure; that is, below which you would not get any more gas. There is some discussion as to whether or not there is such a pressure and I think it would certainly bear investigation.

Prof. Magruder: My only experience along that line was pumping a line in Indiana where the pressure went down —just how much below atmospheric pressure, I am not prepared to say, but the trouble was to keep the air out of the gas line.

Wm. Donaldson: I have pulled pressures down to 20 inches vacuum on the well, but I couldn't see that we got any more gas than if we kept it up to atmospheric pressure or higher. The point I want to make is, is there a pressure where if you go below that pressure, you will not get any more gas?

Prof. Magruder: Most assuredly, if there is none there, you cannot get any more gas. (Laughter.)

Wm. Donaldson: Commercially, I mean. That is a question I desire to raise before this association.

Prof. Magruder: I understand it is not a question of pure science or of mathematical investigation, but it is a commercial question, a question of business as to whether or not there is a limit below which it is absolutely useless to go, commercially speaking. Or stated conversely, is there not a limit beyond which it is undesirable to go, commercially speaking, for financial reasons? For example, a company is using a 10-inch main. Now, what would be the result if that same amount of gas were put through a 4-inch main? What will be the thickness of the main? What kind of joints will you have? What will be the cost of that line per mile? If the additional cost occasioned by the use of a 4-inch main as compared with a 10-inch main is sufficient to wipe out or more than wipe out the profit to the company, it would not be a good business proposition. Consequently, there are these maximum and minimum limits above which and below which it is not desirable to go for purely commercial reasons.

Wm. Donaldson: It was the commercial aspect that I had in mind. There is certainly no sense in pulling your line down if you are not going to get any more gas out of it.

Prof. Magruder: As far as I can see, unless it is the very last cubic foot of gas which you must have or bankruptcy stares you in the face, it might be advisable to stop right at atmospheric pressure. But you gentlemen have more experience in that kind of work than I have and I would be very glad to hear from you.

E. D. Leland: To my mind it would depend to a very large degree on the condition of the sand. If the sand were a porous sand, I should think it would pay to pump at a very much lower pressure than if it were non-porous or dense. From a commercial standpoint, it depends upon the character and nature of the condensates. I want to add one more thought with reference to a subject which I think the committee should investigate, if the association should conclude to appoint such a committee as has been suggested by Professor Magruder. A very fruitful field for improvement would be to see how we can care for our wells without blowing such vast quantities of gas out into the atmosphere every day. Millions of feet of natural gas which is getting to be day by day more and more of a luxury is wasted in that way. If a system of traps could be devised to take care of the gasoline or the water without wasting the gas, it certainly would be a very great help towards the conservation of this natural luxury. Gas companies have spent thousands of dollars in putting in expensive gas engines in order to save some gas and they have saved it without any question, but the query I wish to put is, could they not have saved thousands and thousands of dollars representing the millions of feet of gas wasted in this way by the exercise of due care and by the expenditure of a comparatively small amount of money?

J. C. McDowell: It might be interesting for this convention to know that in the Murraysville field lying east of Pittsburg, the Murraysville sand was a formation in which no water was to be found. Some nine or ten years ago I had charge of the Philadelphia Company's business and we had a 36-inch line running from Murraysville into the city and a complete system connected up with the principal wells through the Murraysville field. We made a very careful investigation as to how low we could pump that field commercially, or, in other words, how low it was profitable to pump it, and although we were able to put as much as five pounds vacuum on it in different parts of the field, yet we found that it did not pay, commercially speaking. We were not rewarded by a sufficient additional quantity of gas to justify the continuance of the experiment. We found we could not take the gas out at lower than zero and consequently we gave it up and did not try to take it out any more. The added gas did not pay for the additional power required to secure the gas, so that I think we may safely say that wherever it is necessary to use vacuum on wells to get out additional gas, from my experience, it cannot be done at a profit, commercially speaking. I have not only tried it in that field, but I have tried it elsewhere and I have never found a place where it was profitable to make vacuum on wells to get out additional gas.

W. M. Welch: What I was going to say, I feared it might have a tendency to shorten the discussion of this very interesting subject, and I have, therefore, held off until I thought the discussion was about completed. I would like to make a motion for the appointment of this committee, but before making that motion I would say that Mr. McDowell might have cited an instance which occurred in connection with the Philadelphia Company. I was with the company at the same time. As he will recall, we had a regular compressor station and I think we maintained about 15 inches vacuum, running it through water—an uneconomical steam compressing station, and this question came up to determine the advantage to be gained from the gas thus obtained. Experiments were made to ascertain the increased amount of gas thus obtained when running the station. As a matter of fact, it was found that only 25 to 33 1-3 per cent. more gas was put through the line when the station was running than when the station was not running. We shut the station down at once.

In connection with Mr. Leland's remark, he might be right. I don't know. He made the statement that he thought if the sand were open or porous sand, it would pay to pump at a very much lower pressure on wells than if a dense sand. It occurs to me that the situation might be just the reverse and that if it were a dense sand it might pay to pump at a lower pressure on the sand than if it were an open sand, because with an open sand it has a freer flow and he does not need the lower pressure to get the gas which is far back in the interstices of the sand.

Now, I desire to make a motion that a committee of five—which I think will be better than three—be appointed for the purpose of making researches into scientific and engineering matters pertaining to the natural gas industry.

Frank L. Chase: May I offer an amendment to that motion? Instead of having the committee appointed to make an investigation and research in the scientific and engineering matter pertaining to the natural gas industry, I would like to amend the motion so that the committee may be appointed for the purpose of recommending to this association a plan or course of conduct which may be carried out in the future in order to accomplish the results that Professor Magruder has suggested by way of investigation. In other words, instead of having this committee merely investigate the questions raised by Professor Magruder, rather let the committee recommend to the association a plan by which this may be done. There is enough matter suggested by the questions propounded by Professor Magruder to keep this committee at work for the next five years, if they take up the subject themselves.

(Continued Next Issue.)

The German company which secured a franchise for supplying Manila and Rizal province, Philippine Islands, with gas, has filed articles of incorporation with the bureau of archives on a basis of $2,000,000 capital stock. The new company will be known as the Manila Gas Company.

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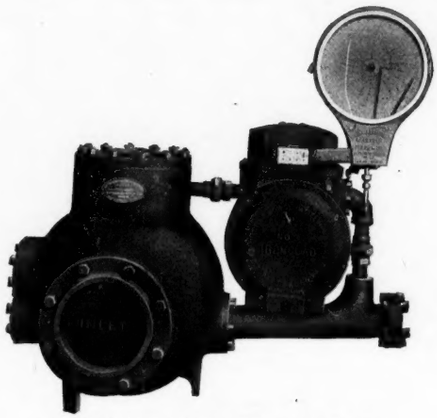

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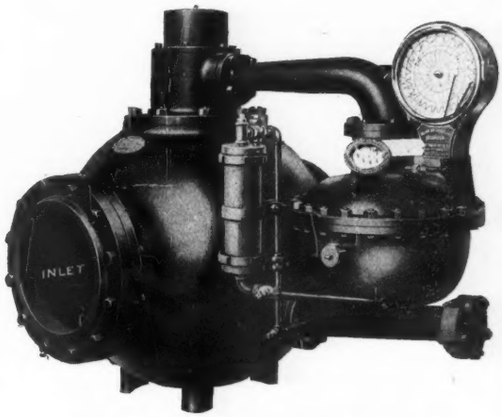

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Gulf Pipe Line Company	.46
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Southeast Texas.

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Sour Lake	.67
Batson	.67
Saratoga	.67
Humble	.67
Dayton	.67

Eastern States.

Pennsylvania	$1.30
Corning	.77
Mercer County Black Oil	.87
New Castle	.84
Cabell	.94
North Lima	.82
South Lima	.77
Indiana	.77
Illinois, 30 degrees and above	.63
Illinois, under 30 degrees	.55
Princeton, Ind.	.60
Somerset	.72
Ragland	.45
Canada	1.24

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PIPE LINE STATISTICS.

The following table shows the runs and shipments by the various pipe lines in the oil fields of New York, Pennsylvania, West Virginia, Kentucky, Tennessee, Ohio and Indiana:

Runs May 1 to 25, Inclusive.

National Transit Co.	252,012
South West Pa. Lines	124,137
Eureka P. L. Co.	669,209
Buckeye P. L. Co.	484,313
Cumberland P. L. Co.	31,600
Indiana P. L. Co.	81,349
New York Transit Co.	13,242
Southern P. L. Co.	.....
Crescent P. L. Co.	.....
Tidewater Pipe Line (Pa. Oil)	98,145
Tidewater Pipe Line (Ill. Oil)	124,858
Ohio Oil Co. Ill. Oil	1,664,271
Total	3,543,136
Average runs	141,725

Shipments May 1 to 26, Inclusive.

National Transit Co.	1,402,118
South West Pa. Lines	136,544
Eureka P. L. Co.	67,337
Buckeye P. L. Co.	286,178
Cumberland P. L. Co.	5,893
Indiana P. L. Co.	670,936
New York Transit Co.	1,092,728
Southern P. L. Co.	454,224
Crescent P. L. Co.	82,890
Tidewater Pipe Line (Pa. Oil)	252,538
Northern Pipe Line	8,822
Ohio Oil Co. Ill. Oil	746,839
Total	5,207,047
Average shipments	200,271

California Runs.

Runs and shipments of the Standard Oil Company, Division B, for seven days ending May 21, are as follows:

Field—	Bbls.
Kern River	6,047
Coalinga	106,828
Newhall	2,143
Santa Maria	9,954
Midway	237,943
Whittier	2,990
Total	365,905
Shipments	229,445
Surplus	136,460

The Prairie Oil and Gas Company.

Net runs and deliveries from May 1, 1911, to May 21, 1911, both dates inclusive:

Runs	1,827,819.20	87,039.01
Deliveries	1,839,185.88	87,580.28
Taken out of Tankage.	11,366.68	541.27

NEW YORK EXPORT PETROLEUM MARKET

NEW YORK, May 25.—There continues an active inquiry for petroleum and products, but sales for the week just ended show a slight decrease. Business on the whole for this time of the year is larger than was generally expected by both dealers and manufacturers and the call for supplies on outstanding contracts continues unusually good. Prices closed steadier without quotable change, but are still nominal, due to continued competition in foreign markets, particularly in illuminating oil. The decrease in orders for the week ended May 25 was mostly confined to refined illuminating oil in bulk, and in naphtha and gasoline in cases, while refined and benzine in cases and in bulk show marked gains over sales in the preceding week.

A better inquiry for oil carriers to load full cargoes of case oil led to more active chartering at full rates, covering sizable boats, for June and July-August loading for Shanghai at 20½c and 20c a case respectively; also for June-July loading for New Zealand ports and June loading for River Plate at 24c and 22½ a case, respectively. The total charters covering petroleum, in bulk, barrels, cases, etc., reduced to crude equivalent for the week just ended, amounted to about 561,000 bbls., showing a decrease of some 24,000 bbls. compared with the total for the preceding week.

For the week ended May 25, transactions in petroleum and products, as outlined in the review below, are based on terms delivered vessel, free on board New York or Philadelphia, covering 200-bbl. lots and upward and 200-case lots and upward unless otherwise specified. The demand for refined oil in bulk was less active and sales covered fair lines, aggregating about 223,000 bbls., showing a shrinkage of some 57,000 bbls. from sales for the preceding week, with orders booked at 3.75@4.75c per gallon for full cargo lots of standard and water white oils respectively. More activity in inquiries for refined in cases led to a marked increase in sales which covered about 914,000 cases (each case containing two five-gallon cans, 110 fire test oil). Of this amount cargo lots comprised about 670,000 cases, showing a gain of fully 255,000 cases over the previous week's total, booked at 8.75@9.75c for small cargoes and down to 6.95@7.95c per gallon for large cargoes of standard and water white oils, respectively. The balance comprised 254,000 cases, being made up of 3,000-case lots and above, booked at 8.90@9.90c per gallon for standard and water white oils, respectively. There continued a good demand for naphtha, sales covering about 150,000 cases, showing a marked shrinkage from sales for the preceding week, covering nearly 200,000 cases, due in part to the unusually large recent purchases made. A substantial gain in orders for benzine was witnessed and about 54,000 cases (mostly all in bulk) changed hands, on the basis of 12¼c per gallon, in cases, while orders for naphtha were booked at 21¼c for 73 @76° stove at 14¼c and auto at 18¼c per gallon for 68@70° in cases. A further drop in the demand for gasoline resulted in another decrease in sales, only 10,000 cases changing hands at 23¼c for 86° per gallon. Lubricating oils are in good request at former prices, as to brand, fully 47,000 bbls. being traded in. In fuel and gas oils no transactions of importance were effected.

Clearances of petroleum and products at the port of New York from January 1 to May 25, 1911, amounted to some 334,394,342 gallons, showing a gain of 24,248,261 gallons over the total for the same time last year. Clearances of petroleum at Philadelphia from January 1 to May 25 aggregated about 134,000,000 gallons, showing an increase of some 30,000,000 gallons over the total for the same time last year.

According to cables and private mail advices from the principal European markets and oil fields abroad, a steadier tone pervades, but no quotable change in prices of crude and refined petroleum is noted.

The usual decrease in the movement of supplies of illuminating oils into consumption in the English markets is being witnessed owing to the near approach of the summer months and long days, and trade is quiet. Prices closed unchanged but are wholly nominal, owing to liberal concessions being made on sizable contracts covering American and Russian refined. In the Indian markets few changes of interest have been made and aside from a slight reduction in quotations on American oil in cases and in bulk in the Karachi market, also a moderate advance in the price of American oil in bulk in Calcutta, the close was quiet. In Bombay no changes were reported on either American or other foreign petroleum. The situation in crude oil in the Russian markets shows a further slight improvement with the tone stronger and quotations advanced for parcels for immediate delivery. The requirements of consumers in the interior of Russia are fairly well supplied and business is slowing down. Owing to the recent rises in prices for liquid fuel oil the demand from consumers has slackened again, latter turning their attentions to coal, due to the comparatively lower values compared with liquid fuel. Kerosene has strengthened on firmer views by holders, who are carrying the bulk of large stocks on the Volga river. A renewal of a contract for kerosene between Nobel Bros. and a number of small refineries is expected to be announced in the near future. A steady tone dominates the Roumanian market for crude oil, owing to an improved demand and a fair increase in sales, but business transacted is being chiefly confined to withdrawals on outstanding contracts covering oil in bulk. Several contracts calling for sizable lines of fuel oil for forward delivery have been closed at steadier prices, principally for account of the railroads there. There is no cessation in the production of crude oil and a further increase is looked for in the near future, owing to a renewal of activity in the oil fields. There continues a fair export business principally to English markets, but at the expense of prices for both illuminating oil and benzine. At Yokohama American oil in bulk has been slightly advanced, while at Shanghai the close was unchanged. In the Philippine Islands trade in the various brands of case oil continued steady at former prices.

The following table gives the charters for petroleum and products, in bulk, barrels, cases, etc., with daily averages, reduced to crude equivalent, compiled in barrels, for the week ended May 25 and since May 1, 1911:

	Day	Since May 1.	Average
May 19	96,825	1,633,395	85,968
May 20	114,286	1,747,681	87,384
May 22	47,619	1,795,300	81,605
May 23	84,444	1,879,744	81,728
May 24	38,095	1,917,839	79,910
May 25	179,110	2,096,949	83,878

The clearances of petroleum at the port of New York, for the week ended May 25, and since January 1, 1911, compiled in gallons, with comparative figures were as follows:

	Week.	Since Jan. 1.	1910.
Refined	15,259,500	241,647,040	223,873,288
Crude	500,000	13,248,659	6,940,472
Naphtha	1,502,963	26,350,142	25,382,990
Residuum	25,200	82,050	6,778,723
Benzine	2,160	4,317,477	1,978,218
Gasoline	98,216	7,322,204	9,273,307
Lub. oils	2,088,621	40,067,881	34,797,549
Min. oils	9,945	1,408,889	1,121,534
Total	19,486,605	334,444,342	310,146,081

Foreign Closing Cable Quotations,

(American refined petroleum in barrels, standard white oil, ex-wharf.)

	London pence	Liverp'l pence	Antwerp francs	Bre'n marks
Fri.	5⅜@5½	5⅜@5½	18.75@19.00	6.00
Sat.	5⅜@5½	5⅜@5½	18.75@19.00	6.00
Mon.	5⅜@5½	5⅜@5½	18.75@19 00	6.00
Tues.	5⅜@5½	5⅜@5½	18.75@19.00	6.00
Wed	5⅜@5½	5⅜@5½	18.75@19.00	6.00
Thur.	5⅜@5½	5⅜@5½	18.75@19.00	6.00

C. N., JR.

Judge J. P. Henley of Indianapolis, W. M. Frasee of Rushville and A. B. Ayres of Fortville have plans under way to supply the towns of Princeton, Oakland City, Winslow, Petersburg and Francisco with natural gas from the Oakland City, Ind., gas field. The gas properties now in operation in several of the towns will be purchased, if possible, but the promoters of the new enterprise say that new plants will be installed if the old ones cannot be purchased. The company has obtained options on a large part of the Oakland gas field.

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